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in this issue...



- **Only skin deep?** A corporation often has as many different "images" as it has "publics," and one of the most important of these, declares **SAUL GELLERMAN** (page 4), is its employment image. For this employment image often explains why one company has no difficulty in recruiting the cream of the available managerial and technical personnel, while another gets second-best, even though it offers equally attractive opportunities. It also explains how a certain sameness and conformity can develop within the ranks of executives and technical personnel—without top management's ever having planned it that way.
- **Labor and Management in 1960.** About a year ago, **THE MANAGEMENT REVIEW** published a forecast, by American Cyanamid's **WILLIAM KARPINSKY**, which called all the turns in last year's collective bargaining. In this issue, Mr. Karpinsky plays a return engagement with a preview of bargaining in the year ahead (page 9).
- **Three Characters in Search of a Definition.** Return on investment is a key consideration in every company's planning, yet the term often has widely different meanings to different executives—as illustrated by **ROBERT J. HOUSE**'s fable on page 18 about the Follies and Fortunes of Three Wise Businessmen.
- **EDP—Now or Later?** Many companies would like to install computers now, but reason that they'd better hold off because tomorrow's developments might easily make today's models obsolete. Those who are deferring EDP for this reason—or who are uneasy about the future of recently installed systems—will be interested in **NEAL J. DEAN**'s article on page 24.

—THE EDITORS

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THE MANAGEMENT REVIEW is published monthly by the American Management Association, Inc., at 1515 Broadway, Times Square, New York 36, N. Y. Entered as second-class matter March 26, 1925, at the Post Office at New York, N. Y., under the act of March 3, 1879. Second-class postage paid at New York, N. Y. Subscriptions: \$7.50 per year (nonmembers, \$12.50). Single copies: \$1.00 (non-members, \$1.25). Volume XLIX, No. 3, March, 1960.

Changes of address should be forwarded to the publishers six weeks in advance and postal zone numbers should be included in all addresses.

The American Management Association does not stand sponsor for views expressed by authors in articles issued in or as its publications.

An index to THE MANAGEMENT REVIEW is published annually with the December issue. The contents are also indexed in the Industrial Arts Index. THE MANAGEMENT REVIEW is microfilmed by University Microfilms, Ann Arbor, Mich.

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THE COMPANY EMPLOYMENT IMAGE

*Attracting People of the
Caliber You Want*

■ **Saul W. Gellerman**

TODAY, MOST COMPANIES are being manned as a result of decisions that were made in relative ignorance or prejudice—not the decisions of top management or personnel managers, but decisions made by people who may never have been inside the company's doors. As a result, some organizations are attracting the lion's share of talent, while others bog down for the lack of it. And this is es-

During the past year Dr. Gellerman has been engaged in research on employee motivation at IBM. He is the author of "The Company Personality: What It Is, How It Got that Way, and What to Do About It," in **THE MANAGEMENT REVIEW**, September, 1959, and of a book tentatively titled *The Uses of Psychology in Management*, to be published this spring by McGraw-Hill.

pecially true among the two occupational groups of people on whom business is increasingly dependent for its survival: technical specialists and managers.

This unfortunate state of affairs, as yet unrecognized by many companies, has come about as the result of a very rapid evolution in the market processes through which men and jobs are brought together. In a nutshell, here is the present situation:

Employee selection now works both ways. Employable individuals with new, critical skills are in more of a seller's market than ever before. Consequently, companies that are prospective employers are being subjected to a constant, unorganized, but highly selective "screening process" that largely determines which of these men will apply to a given company at all.

The classical pattern for corporate hiring is now confined more and more to positions for which there are well-established traditions and a relatively abundant supply of applicants. Typically, this pattern involved creating an opening at a low level from which a young man could work his way up, if he was good enough. Whether the job or even the industry was particularly suited to the man was often a less important consideration than the mere fact that an opening was available. Many a career has been launched, for better or for worse, through this classical device of being in the right place at the right time.

The new hiring pattern is much less a matter of chance, although it is not really much more deliberate. The individual with a background in a specialty field now has a tremendously expanded range of choices. He is more mobile, more sophisticated than before—and he can allow himself the luxury of being more complicated, too. Specifically, he can afford to consider his job as a vehicle to status and personal fulfillment, rather than as just a way to earn a living. Consequently, he shops among potential employers with many of the same motives with which he shops for a car, a house, or a new suit.

THE SEARCH FOR STATUS

The name and reputation of his employer can express something about an individual in much the same manner as any other status symbol. While status-consciousness is rather ubiquitous nowadays,

it is likely to be especially strong among people who have gravitated into one of the new professions or technologies. Indeed, it is often a basic motive for their having selected these careers. When these people enter the job market, they are likely to eliminate many possibilities among prospective employers before they actually narrow the field down to the few to whom they will make serious applications.

This process of elimination of employers by employables is perhaps the most crucial, and the least understood, aspect of corporate development. This is the point at which the good ones get away, and at which the leftovers tend to gravitate toward certain luckless firms. It is also the point at which the caliber of a company's applicants can be significantly upgraded, *if* the process is adequately understood.

THE IMAGE IN ACTION

The preselection of employers by employables is conditioned by a set of impressions about a company, which we can call its *employment image*—the company's reputation as an employer among potential employees. Typically, it is compounded of several facts, a few half-truths, some industry scuttlebutt, and a couple of hard-luck stories by disgruntled employees. In other words, the employment image is usually a myth—though often with a few (sometimes embarrassing) grains of truth.

Myth or not, the employment image seems to be shared with surprising consistency by a large number of employable people—even when it is not spelled out in so many words. What is more important, it is likely to be believed. Particularly among younger men, it is often considered sophisticated to accept without question the "inside dope" that the rumor mills grind out about the various companies in their field. Even seasoned men are quite likely to accept these stories, unless they have had some extended contact with the company in question.

As a result of this persistent mythology, many a costly recruiting program has been frustrated from its very outset. The kind of people that a company wants to attract simply may not respond in sufficient numbers to permit any real selectivity in hiring. Odd as it may seem, an "unknown" company often has an advantage over well-known

firms when it comes to arousing the interest of qualified job-seekers. At least it has no negative illusions to dispel! (Of course, it has no alluring positive images either—and its "neuter" image is not likely to last very long if the company starts to grow.)

Some companies have positive, or at least innocuous, employment images. They attract an adequate number of the kind of people they want, and can afford to look them over and select the best ones. They are, in effect, fishing in a barrel, and are likely to come up with a healthy catch of new hires even without a high-powered procedure for evaluating candidates.

But this happy condition is seldom something for which these companies can congratulate themselves. Their appeal among employables is rarely projected into their image deliberately. In fact, positive images are often spawned in much the same haphazard way as negative ones—they are frequently fictitious, exaggerated, or one-sided.

A SELF-PERPETUATING PROCESS

Even the most fictitious image can become fact if enough people believe it, and if it persists long enough. As time goes on, new additions to the company's payroll will tend more and more to be men of a certain stripe: those who find the company's employment image attractive, or at least tolerable. On the other hand, there will be relatively few men coming in, and still fewer remaining for any length of time, for whom this image is undesirable.

Gradually, as the proportion of these people in the company grows, the true character of the company will be influenced by the weight of their numbers. It will gravitate more and more toward the traits that rumor and gossip originally ascribed to it as it attracts toward itself men who like its employment image.

THE HOMOGENIZING EFFECT

Two forces can accelerate this process. First, competition between companies for specialists can, in effect, sharpen the differences between their employment images. With various employers bidding against each other for the services of men with needed talents, job-shopping becomes more of a self-expressive game for employables than a matter of taking whatever they can get. In this frame of

mind, they are more sensitive to hints and innuendoes, and perhaps readier to believe than they might ordinarily be.

Consequently, images seem more definite, and therefore more attractive or repellent (as the case may be) than usual. Each company is more likely than ever to be selected by men who find its employment image—now etched in seemingly bolder relief—compatible with their own tastes. Employables are also more likely to *disbelieve* any aspects of a recruiting appeal that do not fit this pre-conceived image. This results in the "blank wall" that some luckless recruiters find themselves running into on occasion.

The second force exerts its effect over a longer period. As a company attracts a relatively homogeneous group of men, it tends to place its own distinct stamp on their working customs and ways of thinking about their jobs. Being associated with people whose dispositions are more or less similar encourages people to stress the traits they have in common. Meanwhile, traits that are more or less unique to the individual tend to be submerged. Conformity tends to result—with or without any deliberate attempt having been made to foster it—as men with much in common find the grounds on which they can deal with each other most comfortably.

While all this is going on, various outsiders are continually coming into contact with company employees, and forming impressions of the company on the basis of those contacts. As the viewpoints and mannerisms within the company become less diverse, the impressions that outsiders take away with them are likely to become more stereotyped. In other words, the image first tends to get built into the company, and the company in turn starts to reinforce the image. A vicious circle is set up which tends, over a period of time, to "homogenize" the personnel of a company. This effect is never complete, and it is sometimes blurred by competing images within a single company; but the basic trend toward sameness within a given organization is nevertheless quite common.

THE NATURAL HISTORY OF EMPLOYMENT IMAGES

Images, even though they nearly always oversimplify or do some kind of mischief to reality, are the products of some ubiquitous quirks in the way the human mind perceives a big organization. It

(Continued on page 71)

LABOR AND MANAGEMENT:



The Bargaining Outlook for 1960

■ *William Karpinsky*
American Cyanamid Company

THE YEAR 1960 promises to be one of widespread labor peace, with the number of strikes and man-days lost due to work stoppages approaching record lows. Few labor agreements covering large industries are scheduled to expire during the year, and the possibility of mass strike idleness, such as occurred last year in the steel industry, is unlikely.

The largest and most important negotiations are those involving the railroads and various brotherhoods, but a settlement should be reached on wages, either through arbitration or an emergency board

recommendation, with the thorny issue of featherbedding being referred to a special board for study and recommendation. The men's clothing industry (145,000 employees) and the Amalgamated Clothing Workers of America are expected to encounter little trouble, since no wage increase has been negotiated in menswear since 1956, and management is not unfavorably disposed to granting one this year.

The country's space and missile program may be slowed by some key work stoppages when the IAM and UAW sit down to bargain with aircraft manufacturers this spring on wages, job classifications, and severance pay. The always touchy negotiations between General Electric and Westinghouse and James Carey of the IUE will reach a climax in the autumn, and anything is possible.

This prospect of general union-management accord during 1960 is, in reality, an extension of the basic labor stability which underlay the economy throughout 1959, despite the steel strike. The 116-day steel stoppage projected a distorted image of industrial conflict, both statistically and publicly. If man-days lost due to the steel strike were subtracted, total strike idleness in 1959 would be comparable to 1958, and somewhat better than a number of years since World War II.

THE TREND IN WAGES

The outlook for wage increases during 1960 is for a continuation of the slight upward trend established during 1958 and 1959. Increases may reach 10 cents per hour in 1960. The average wage gain during 1959 was about 9 cents per hour, and the 1958 settlements were only fractionally lower. The similarity of these fairly equal increases is quite surprising when it is recalled that a severe recession was suffered in 1958 and that 1959 was marked by a rising prosperity.

The uniformity in annual wage growth over the past several years may be due to a number of factors:

1. Long-term contracts which specify fixed deferred payments or productivity formulas, such as 2½ per cent per year—an average of 6 to 7 cents per hour.
2. The existence of a fairly large number of unemployed, despite the recession recovery.

3. Escalation clauses and negotiations during periods when the cost of living rose only moderately. The BLS Consumer Price Index gained about 1.5 per cent between December, 1958, and December, 1959. It may increase another 1.5 per cent by the end of 1960.

4. Employee recognition that reasonable annual wage increases, sufficient to offset living costs and to include a share in productivity gains, provide a measure of security to the company and the worker, and that striking for a few pennies more seldom pays off in cash income.

The key factor in the present restrained wage growth is the cost of living; the degree of future wage fluctuation may well be determined by this factor alone. However, a substantial reduction in the forecast 3,100,000 unemployed in 1960 could also accelerate wage boosts.

RESTRICTIONS ON ESCALATOR CLAUSES?

Escalator clauses, under which wages are adjusted to cost-of-living changes, may be modified, limited, or, in a few instances, eliminated during the coming year. These clauses are usually geared to the BLS Consumer Price Index, which is being pushed upward primarily by the cost of personal services rather than by prices of finished industrial goods. Manufacturers who have concluded wage settlements which they believe will stabilize employment costs have found escalator clauses forcing their labor rates upward, without an accompanying industrial price advance. Raising prices to recapture these added production costs contributes another boost to the Index, and we have a self-generating spiral.

In some cases, strong competition may preclude higher prices to offset production costs. Faced with this situation, companies are seeking to place ceilings on automatic escalation, such as the top limit of 3 cents per hour per year in the aluminum industry. In a few other cases—in three Union Carbide plants, for example—escalator clauses have been discontinued.

Escalator formulas are usually incorporated in long-term agreements to assure employers of strike-free operations and to protect workers against wages being eroded by inflation. Eliminating such adjustment schemes would inevitably lead to short-term contracts with more frequent negotiations and a greater possibility of labor

unrest. In view of this, the outlook would indicate a restriction on upper limits of escalator adjustments rather than their abolition.

COSTS—DIRECT AND INDIRECT

One of the many confusing issues raised by the steel negotiations was the widely varying cost estimates placed upon union demands and company proposals. Even after a settlement was reached, there were considerable differences between spokesmen from industry, labor, and the government. These differences raised a major question: Should a wage settlement be estimated on the basis of benefits received by an employee or costs to the employer of those benefits? Does a ten-cent-per-hour across-the-board increase received by a worker constitute a ten-cent-per-hour cost to the employer? The answer is obviously not, but some employers fail to calculate the additional burden imposed by such indirect factors as:

1. Larger Social Security taxes for those earning less than \$4,800.
2. Increased pension and insurance premiums, even when programs remain unaltered.
3. Higher overtime rates, particularly where overtime is a regular practice.
4. Larger incentive payments for the same output, if the incentive plan is based on a percentage of standard.

Unless employers inform themselves about these and other indirect costs and utilize them in negotiations, they may be saddling themselves with unanticipated expenses.

EMPHASIS ON FRINGES

The burgeoning cost of fringe benefits presents management with a difficult problem in education and communication, both to employees and to the general public. This problem is not eased by regular government publication of hours of work and wages, which does not include added fringe-benefit costs by industries.

In general, wage increases expressed in cents per hour or dollars per week are viewed as added compensation to offset productivity and cost of living, and fringe benefits are considered just extras. And yet, fringes cost about 50 cents per hour, or approximately \$1,000 annually per employee. This added cost of production must

be recovered, either through productivity or price increases, or a lesser share of company income will go to shareholders. It is an oversimplification, but it is possible to argue cogently that employment costs in the form of fringe benefits have constituted the "little extra spur" that has caused past inflationary price increases.

Emphasis on fringe benefits will continue through 1960. No pace-setting innovations are foreseen, but a number of improvements in pensions, insurance, and severance pay should take place. The inclusion of dental care in medical plans is already well under way, with more than 500,000 persons now covered. This protection may be extended quite rapidly in the next few years. Pension plans will feature increased benefits, broader vesting, and early retirement privileges. A novel feature of the steel pension plan, three months full pay upon retirement, should also make itself felt in many bargaining tables eventually.

As a consequence of the pattern established in the aluminum, can, and steel industries, insurance fully paid by companies is certain to spread. The trend toward company-financed insurance and pension programs in place of contributory plans has a dual advantage for workers: higher wages, and the discontinuance of income tax on former contributory payments. A small but growing possibility exists that unions will gradually sponsor more prepaid insurance and medical plans as Blue Cross premiums balloon.

MANAGEMENT ATTITUDES

Public concern is being expressed by government officials, union leaders, and labor relations authorities regarding "tough bargaining," "hardening attitudes," and the "union-busting crusade" of management today. There can be no denial that company negotiators today are approaching collective bargaining better informed, more poised in face of union tactics, and fully prepared to take a strike if necessary. The accusation that this more mature attitude is part of a union-busting plot is sheer propaganda.

With productivity gains in the last several years slowing down, fairly obvious cost-reduction measures being exhausted, and prices being held stable, employers have been compelled to resist unreasonable demands or "peace at any price" concessions in union negotiations. The basic motivation for more militant, two-way bargaining

on the part of management is profits after an equitable sharing with employees, not anti-union bias.

Some enlightenment on the subject of productivity has been offered by the Bureau of Labor Statistics by publication of data for the 1947-1958 period. According to this report, productivity rose 6.2 per cent per year in the agricultural sector of the economy and 2.4 per cent in the nonagricultural area—a weighted average of 3.1 per cent annually. The increase in output per man-hour was 2.3 per cent in nonmanufacturing and 2.9 per cent in manufacturing. In the five-year period, 1947-1952, the nonfarm productivity index rose 14.9 per cent; it rose only 9.7 per cent in the 1953-1958 period. This slowing down in productivity will continue over the next several years and, in all likelihood, will result in continued management firmness in resisting unnecessary labor and other costs.

WORK RULES AND FEATHERBEDDING

The widespread attention being given to restrictive work practices in the form of obsolete work rules or featherbedding is a natural outgrowth of management's search for lower production costs. Although the steel industry took a sound beating on the issue of work rules, it is doubtful that this setback will deter management from continuing to seek greater efficiency in worker performance where present practices involve idle time, excess personnel, and restrictive work assignments. Outsiders may take the position that industry has accustomed its workers to such manpower waste by past tolerance and, therefore, has no right belatedly to insist upon betterment, since improved efficiency may mean job losses. Of course, workers should be protected from job loss where it might occur, and such safeguards can be negotiated where needed, but it is clear that continuance of ingrained wasteful customs does not represent long-run employee security.

The elimination or modification of obsolete work rules is an explosive issue in any contract negotiation. Poorly planned and presented, it provides fuel for union propagandists to charge that management aims to turn the clock back to "industrial slavery," and workers are persuaded that all present benefits are seriously endangered. It required little persuasion by the Steelworkers to convince members that the generalized eight-point program of the companies

on work rules, scheduling, etc., would wipe out coffee breaks, travel time, and even toilet visits on company time.

When workers are convinced that management intends to take away customary and previously negotiated benefits, their solid opposition is understandable. Many "obsolete work rules," however, have not been negotiated specifically; they are rather the result of changing work situations where management has failed to change work conditions accordingly. In other cases, strike threats have prevented efficient assignment of manpower and equipment. In these ways, lack of foresight and capitulation have led to an accumulation of practices whose excess costs have mounted, and management is not entirely without blame for the outmoded work conditions that have created today's controversies.

ELIMINATING INEFFICIENCY

What lessons pertaining to work rules might be gained from recent events? The principal lessons are two: (1) train supervisors, industrial engineers, and labor relations personnel to prevent ineffective practices from getting started and being perpetuated; and (2) resist union make-work demands, even when current profits are running high.

Obviously, there is no easy way to convince employees to relinquish already existing practices, no matter how inefficient they may be. Patience, education, and proof of inefficiency are prerequisites. Here are some steps that might be taken in negotiating such work-rule changes:

1. Concentrate on one or two important changes, rather than adopting either a "buckshot" approach, hoping to gain at least some of your demands, or asking for broad authority to make *any* desired changes. For instance, the Canadian railroads concentrated on the single issue of firemen on Diesel engines for four years and two strikes before accomplishing their objective.
2. Use efficiency and economics to justify changes, and avoid such slogans as "restoring management's prerogatives to manage." The very nature of collective bargaining involves some surrender of management rights.
3. Explain the impact upon workers involved, to forestall allegations of speed-up and job cuts. Where job cuts or transfers would

result, propose safeguards against individual workers having to bear undue losses.

4. Communicate company objectives and the full proposal to all employees frankly and in some detail, without name-calling and allusions to loafing, free herbedding, or make-work.

5. A proposal for a work rule change or two is seldom worth a strike, but it can be used effectively to reduce union demands, even if it must finally be abandoned. If the proposed change or changes are worth a strike, be firm and prepared.

6. If not successful the first time, try again. Although little publicity is given to negotiated modifications and abolition of obsolete work rules, many companies are slowly but steadily bringing about improvements.

AUTOMATION AND JOB SECURITY

Significant progress was made during 1959 in coping with problems of automation. Armour Company and the Packinghouse Workers formulated a plan to train employees for new and changed jobs from a \$500,000 fund based on royalties from meat shipments. The New York Shipping Association and Longshoremen agreed that existing 20-man work gangs will be retained, with employers being permitted to introduce labor-saving devices. The Pacific Maritime Association and the Longshoremen established an earnings stabilization fund of \$1,500,000 to reimburse workers for loss of employment due to technological advances. Approaches similar to these, which cushion unemployment and restrict individual losses, will reduce somewhat the genuine fear of automation that prevails among employee ranks today.

A UNITED FRONT

The growing concentration of trade union strength through industrywide bargaining, area action, and company councils is creating a like reaction within industry. Companies coordinate bargaining to avoid "whipsawing" tactics, airlines and Hawaiian sugar growers share profits from increased business when one is struck, railroads seek mutual aid insurance in the event a union singles out individual lines to establish a wage pattern, and many small concerns within an area band together to resist being exploited separately. This

trend toward mutual aid and a united front in collective bargaining will probably grow slowly but steadily in coming years.

THE LANDRUM-GRIFFITH ACT

The impact of the Landrum-Griffith Act on collective bargaining will be difficult to evaluate until the NLRB has established its views by case interpretation of the legislation. The secondary boycott and hot cargo prohibitions are certain to be attacked in lengthy legal battles by the Teamsters and others. (For instance, does the voluntary agreement of an employer with a truck driver not to cross a picket line constitute a hot cargo violation?) The ban on organizational and recognition picketing will, in all likelihood, be subject to some rather bizarre interpretations by the NLRB—there is, for example, bound to be a ruling that the mere changing of words on a picket sign converts an illegal recognition strike to a legal boycott—before reason at last prevails.

THE SPECTER OF LABOR VIOLENCE

With the spread of a firm and realistic approach to collective bargaining, employers will become increasingly tempted to operate production facilities despite picket lines. This may be particularly true of small and medium-sized plants that can be operated by supervisors, relatively unskilled personnel, or nonstrikers. Consequently, we may see an upturn in the ugliest phenomenon of American industrial relations—labor violence. The federal government can be expected to take a hands-off attitude, under the presumption that local authorities can handle violence. Local authorities, in turn, will probably play political angles. (This was illustrated recently when Governor Freeman of Minnesota imposed martial law to close down a struck meatpacking plant which had continued to produce. He was later chided by the federal court for his action: "It must have been apparent that in this local labor dispute, the State of Minnesota was not required to surrender to mob violence.")

The desirability of federal legislation to insure bargaining rights for unions and individual employees cannot be questioned. At the same time, however, the right of an employer to have access to his plant and freedom to operate it peacefully is equally basic and should be equally insured by federal legislation. ♦



RETURN ON INVESTMENT

A Story of the Follies and Foibles of Three Wise Businessmen

■ *R. J. House*

*Controller, Midland Division
Dow Chemical Company*

ONCE UPON A TIME there were three wise businessmen, and they were normal in every way. They yearned after post-tax profits, dreamed of great expansions, and spoke knowingly of such things as depreciation, risk capital, and inflation.

But there was one noteworthy difference in their business philosophies. This was their understanding of an item called "return on investment." How this affected their business success, and their very lives, is the subject of the tale that follows.

These three gentlemen—whom we shall call Messrs. A, B, and C—began in the same way. Each invested \$100,000 in a project that would yield a post-tax profit of \$10,000 yearly on sales of \$120,000 at capacity. The depreciation in each case was straight-line and the life of the facility ten years, making the depreciation \$10,000 per year.

AT THE END OF FIVE YEARS each had accumulated \$50,000 in post-tax profits, their investments were \$100,000 as booked, and their reserves were each \$50,000, with an investment in their capital accounts of \$50,000 each. So it became evident to Messrs. A, B, and C, they being wise businessmen, that they could do *twice* the business by adding another unit. The only complication was that inflation had caused the same unit to cost \$125,000, so their depreciation for ten years moved upward to \$12,500 yearly.

So each did build a second unit, and their post-tax profits climbed up to \$20,000 per year each. Another five years of comfortable business passed. The market continued to expand, and Messrs. A, B, and C began to look forward to a third unit. But they discovered that inflation had continued in its creeping fashion to a point where this third unit would cost all of \$175,000.

Faced with this decision, the three wise businessmen paused for a closer look at their books. This is what they found:

<i>Sales</i>	from Unit I	\$120,000 x 10 yrs.	\$1,200,000
	from Unit II	\$120,000 x 5 yrs.	600,000
		Total Sales —	\$1,800,000

<i>Post-tax Profits</i>			
	from Unit I	\$ 10,000 x 10 yrs.	\$ 100,000
	from Unit II	\$ 10,000 x 5 yrs.	50,000
		Total Profits —	\$ 150,000

	<i>Unit I</i>		<i>Unit II</i>	
Investment	\$100,000		Investment	\$ 125,000
Reserve	\$100,000		Reserve	\$ 62,500
Net Book	—0—		Net Book	\$ 62,500

It appeared to be wise at this point to calculate the return on investment. So Messrs. A, B, and C cast about for information on

the calculation of return on investment. Mr. A dug up an article on the subject from *Fortune*, Mr. B fell upon a file copy of the *Harvard Business Review*, and Mr. C stumbled on an old issue of *Capper's Farmer*.

AS A RESULT, Mr. A calculated that he had invested \$225,000 in his business and that his profits for the past year were \$20,000. Therefore his return on investment was 8.9 per cent. His calculation was based on return on *original* investment.

Mr. B, on the other hand, calculated that the average book value of the two units was \$73,750. (At the beginning of the year the book value of Unit I was \$10,000, Unit II \$75,000, and at the end \$0 and \$62,500 respectively, for an average of \$73,750.) Since he had made profits of \$20,000, he had a return of 27 per cent. His calculation was based on return on *book* investment.

Mr. C calculated that since a new unit cost \$175,000, it would cost him \$350,000 to replace the two units he had already built. Therefore his return on investment, \$20,000 in the past year, was only 5.7 per cent. His calculation was based on return on *replacement* investment.

For reasons known only to wise businessmen, however, Messrs. A, B, and C elected to wait a year before making a final decision. Their experience during the added year was parallel. Each had no depreciation on Unit I and still it ran, though maintenance costs were up. Unit I thus yielded a profit of \$18,000 that year instead of the traditional \$10,000, and, added to the \$10,000 profit on Unit II, this gave each an overall post-tax profit of \$28,000.

Calculating their return on investment once again, the businessmen found this:

		INVESTMENT	PROFIT	RETURN ON INVESTMENT
Mr. A: Original		\$225,000	\$28,000	12.5 per cent
Mr. B: Book (Average Value) ...	56,250	28,000	50.0 per cent	
Mr. C: Replacement	350,000	28,000	8.0 per cent	

Now, having all the data they needed to arrive at a decision, Messrs. A, B, and C did so.

Mr. A decided the addition of Unit III was a reasonably good investment, and went ahead with his expansion.

Mr. B decided that he was an even wiser businessman than he had suspected, seeing that he had earned a 50 per cent return on investment, and after preparing a glowing report on his fantastic success for the Board of Directors, he went out to celebrate. However, he began to fear a Congressional investigation, for he had defense contracts. He called in his lawyers and economists, but they told him there was nothing legally or economically wrong with his 50 per cent return on investment. So Mr. B built Unit III, but he worried greatly anyway.

One day a Congressional investigator dropped into his office, and his secretary found Mr. B dead of a heart attack, the calling card of the investigator still clutched in his hand. "That's too bad," commented the investigator, "I was just going to ask him to help me find a new job."

Mr. C's experience was the most bewildering of all. Deciding that the risk of building Unit III was too great, he sold what he had and quit work to live on an income which he felt was assured. But inflation whittled down his income, and for many years afterward Mr. C. told his colleagues at the county home about the good old days, when businessmen were much wiser than they are today.

* * *

IN THE non-fiction world of today's business, what can be learned from the experiences of these wise businessmen? It would seem that there are at least three lessons to be taken to heart:

1. *There are several definitions of return on investment.* Many businessmen talk knowingly about return on investment without knowing which convention or definition they are referring to. This confusion can even occur within the confines of a corporation where communications are admittedly in good order.

Mr. B's method of figuring return on investment brought his short, though doubtlessly exciting, life to its untimely end; Mr. A's method enabled him to live longer, if with a lower estimate of his own business acumen; and Mr. C's method led him to spend his remaining years whiling away long hours that might otherwise have been stimulating and productive.

The lesson here is that flexibility of viewpoint is necessary. There are times when the computation of return on investment is valid

by Mr. A's method, or by Mr. B's, or by Mr. C's. A combination of two methods may be valid, or a composite of all three. If Mr. B had been able to look upon the problem from these different points of view, his worry and nervous strain would have been considerably relieved; Mr. A would have had a clearer picture of his own ability and his company's prospects; and Mr. C would probably still be a happy and successful executive.

2. *Each method of computation may be valid in a given case.* This is perhaps best demonstrated by an example:

A certain manufacturer—call it the "Smith & Jones Company"—built a machine-gun factory for the government during the war and produced weapons for the armed services. When the hostilities ceased and the properties were offered for sale, the Smith & Jones books showed an original investment of \$10 million, a depreciated investment of \$5 million, and a replacement value of \$12 million.

Which is the one *right* value of the property? Obviously, there is no one right answer. Mr. A, the proponent of original value (\$10 million, in this case), would certainly hesitate before offering the original value for the property, since the market for machine guns usually diminishes with the end of a war. Even Mr. B would ponder, before offering the book value of the property, whether it was now worth the \$5 million value on the books. Likewise, Mr. C, looking over the property, would hardly think of purchasing it for \$12 million, the replacement value, although it would cost this much if not more to replace the property.

Thus in this set of circumstances, not one of the three computations would represent the proper approach to the problem. Loss of market has become a heavier factor than accounting procedures.

Actually, the buyer who made the high bid on the property, about \$4 million, spent roughly another million to convert it to industrial tool manufacture. What was his investment in the property—\$10 million plus \$1 million? \$5 million plus \$1 million? \$12 million plus \$1 million? Or \$4 million plus \$1 million?

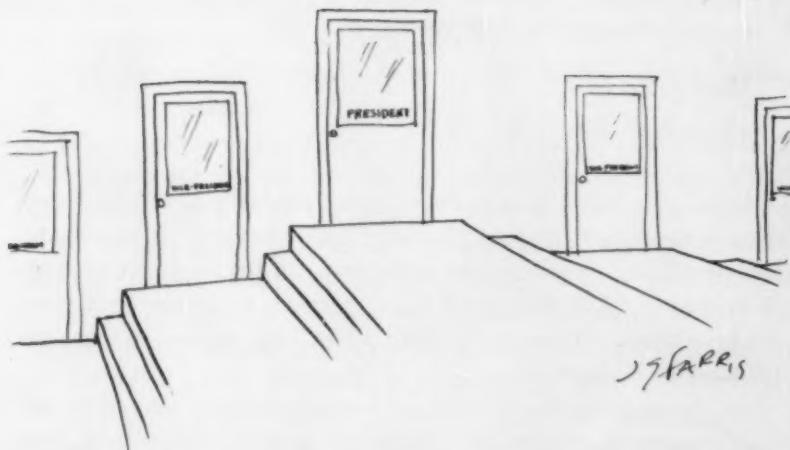
In this case, the correctness of the last answer is obvious, and when a transaction is no more involved than this, a course of action remains clear-cut and simple. Complications set in when an existing unit is added to or duplicated.

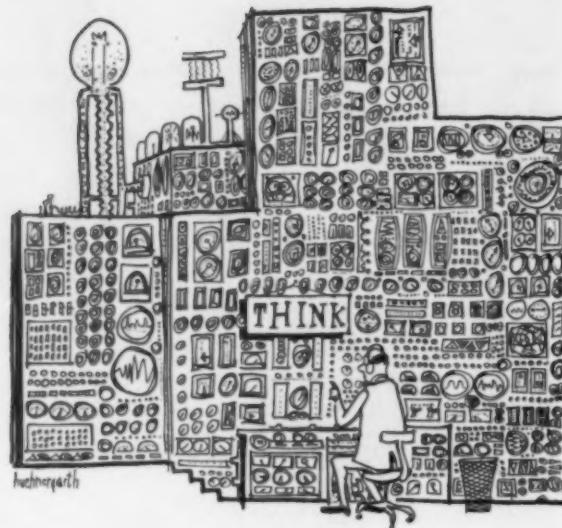
3. *This means that the problem should be approached from*

many points of view. Today's businessman often finds it difficult to do this and feels more comfortable with a pat formula that "always works." He wants to put down his business thoughts in some sophisticated pattern that can always be applied. Moreover, this all-purpose formula has the advantage of being easily typed, duplicated, or printed. If enough words are used to describe and elucidate it, it becomes a fairly safe bet that very few will bother to read it through completely, and that the many, out of respect for the printed page, will quote the ideas advanced as gospel, without proper evaluation. "That's what it says in the procedure manual" has been the epitaph of some of the finest projects in American business.

It is customary for a fable to have a moral lesson. This fable has three:

1. Don't let the misuse of conventional concepts put you in the poorhouse;
2. Understand the basis on which you make your decisions; and
3. Be flexible in your approach to business problems. ♦





Computer Installation— Will It Pay to Wait?

Will developments around the corner make today's computers obsolete? The answer is important to companies that have recently acquired computers as well as those now considering EDP for the first time . . .

■ *Neal J. Dean*

Partner, Booz, Allen & Hamilton

MORE AND MORE MANAGEMENTS are currently having to decide whether and when to apply electronic data processing equipment to their operations. Such key decisions may call for an outlay of from \$1 million to \$2.5 million for system design, equipment purchase, and installation. Even on a rental basis, large nonrecurring costs still must be budgeted.

For this reason, it's natural for managements to ask: *Will our EDP equipment soon become obsolete as a new generation of computers enter this dynamic and fast-growing field?* This is a question

managements must answer in order to determine whether to rent or buy, and to justify nonrecurring costs in view of possible future technological developments.

THREE TYPES OF OBSOLESCENCE

What is the true significance of "obsolescence" in terms that are meaningful to the executive who must consider the large investments needed for electronic data processing installations? It is important at the outset to distinguish between three different types of obsolescence:

1. Functional
2. Technological
3. Economic

A device is *functionally obsolete* if it is either worn out or no longer meets the requirements of the application. Failure to meet the requirements of the application may result if the installed system is either too large or too small for the new requirements. In the majority of cases, however, the device or system becomes too small to meet the new requirements. This situation may come about as a result either of natural growth in volume, increased complexity, or abnormal growth arising from mergers. It is, on the other hand, theoretically possible that the application's requirements could contract to such an extent that the installation would be too large for these revised requirements.

Equipment can also become functionally obsolete if the application changes sufficiently in nature so that the equipment installed is no longer suitable.

The type least significant to management is *technological obsolescence, per se*, since practically every technical device is technologically obsolete by the time it comes off the production line. This is particularly true in any dynamic field, such as electronic computers and data processing equipment, where progress is so rapid. However, the very fact that a more "advanced" device may be available should not of itself render an existing device obsolete in any sense of the word which is significant to management.

The third major type of obsolescence which is of concern to management is *economic obsolescence*. This results from technological advances which produce new devices that are so efficient

that they make continued use of the original installation uneconomic for the company.

Let's examine in more detail each of these types of obsolescence—functional, technological, and economic.

1. FUNCTIONAL OBSOLESCENCE

A device can become functionally obsolete in one of two ways. The first is by wearing out. From this viewpoint we might say that electronic equipment will not become functionally obsolete for 10 to 20 years. Electronic devices do last for a long period of time, even though some components, such as vacuum tubes, may have to be replaced. However, with the appearance of the new transistorized computers, this replacement factor is considerably reduced. In any case, we can assume that the actual device itself will not wear out for at least 10, and probably closer to 20, years if proper care is taken in its electrical and mechanical design.

The other factor in functional obsolescence is the failure of the device to meet changed requirements. In this regard, proper planning of a projected electronic data processing installation should include forecasting needs for at least five and, if at all possible, up to ten years. These forecast needs should reflect both increased volume and new applications. In some cases, however, it is not economically feasible to install a system at the outset which will take care of the company's projected growth through a period of five to ten years.

The method for handling these increased requirements, nevertheless, should be planned in advance. One such method might be to add a second machine when the volume grows sufficiently to make this economically and operationally attractive. In other cases, it may be possible to expand a system sufficiently by adding components to accommodate the increased requirements. This is particularly true of the new expandable, building-block, logical designs which the most recent models of large-scale and medium-scale equipment provide. For example, more tape units could be added so that some runs might be eliminated and combined with other runs; or more memory might be obtained so that a larger combined run might be performed instead of a number of individual runs, thus reducing the operating time. Similarly, with regard to the

peripheral equipment, more high-speed printers or card-to-tape converters might be required to handle increased volume, or a low-speed printer might be replaced by a high-speed printer.

DEVELOPING INCREASED CAPACITY

Manufacturers are making every effort to make their systems expandable so that an installation can "grow with the user." If, however, it were not feasible to add a second machine or expand the existing installation, it might become necessary to replace an existing installation with one of a different type having much greater capacity. (For example, replace a medium-scale with a large-scale machine or a machine of one generation with that of the next.) How costly would this be?

Without going into all the details of such a second conversion, it should be pointed out that in many cases the cost and effort is considerably less than that of the first conversion. The first time an application is converted to electronic equipment utilizing magnetic tapes, a great deal of manual labor is involved in preparing cards, paper tape, or magnetic tape from the original paper records. This involves gathering records which in today's system may be scattered throughout many different departments. It involves comparing existing files to make sure that they agree and, if they do not, it involves determining which is correct and revising the information. It really takes a great deal of clerical effort to gather this information, to put it in a form for key punching, and finally to key punch, key verify, and convert to magnetic tape. After this conversion to magnetic tape, one or more editing runs may be required.

On the other hand, when we are converting from one magnetic tape system to another magnetic tape system it is at least technically feasible to convert from the original magnetic tape file to the new system's magnetic tape file very rapidly. This may involve a device which will convert the tape of one manufacturer into that of another manufacturer—or, if you are moving up to a new generation or larger-scale system of the same manufacturer, it is quite possible that the tape units of the first machine will be compatible with those of the second. Manufacturers are making every effort to accomplish this compatibility in new machines.

Of course, reprogramming will undoubtedly be necessary to some

extent. This reprogramming, however, involves considerably less effort than the first programming job; and, in fact, if you are again moving up to a machine of the same manufacturer, we can anticipate that these manufacturers will be able to offer some routines for converting programs on the existing machine to programs on the more advanced machine. However, in some cases the program thus automatically obtained is less efficient than one that might be designed directly for the new machine.

Therefore, many of the elements of cost in the original conversion program will either be drastically reduced or eliminated in the second conversion. It is impossible to arrive at a universal figure, but in many applications such a projected second conversion may run considerably under 50 per cent of the cost of the first conversion.

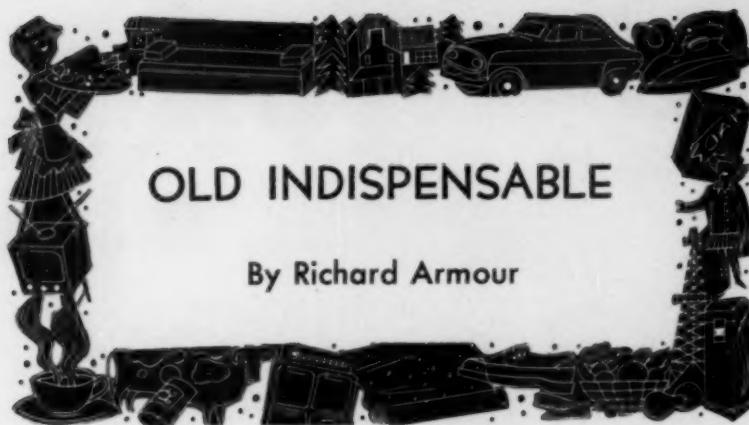
SPECIAL- OR GENERAL-PURPOSE EQUIPMENT?

The cost of the second conversion in a growing installation usually will be lower than the original conversion expenditures. But what happens when requirements change and the original installation is unable to accommodate them?

This should not occur very frequently with general-purpose electronic data processing equipment, because the entire objective of using this equipment is to be able to apply it to a very wide range of applications. General-purpose equipment utilizes internally stored programs which may be revised to accommodate changes. Reprogramming may be necessary, and this may be a small or a large problem, depending upon the nature of these changes and the runs which may be affected by them.

However, there is a real danger in utilizing special-purpose equipment—and this caution must be thoroughly understood by management before it invests in such equipment. Changed requirements can rapidly make special-purpose type equipment obsolete if the equipment is so restricted that it can't accommodate these changes. Among existing special-purpose application installations is the reservation equipment used by many airlines today. This equipment is intended to accommodate an inventory of reservations. While it is difficult to conceive of requirement changes so radical

(Continued on page 78)



OLD INDISPENSABLE

By Richard Armour

Who is the indispensable man?
If you can't name him, I think I can.
He isn't a seller, he isn't a maker,
He isn't a marketing record-breaker,
He's not an economist, keen and wise,
Nor a bright executive on the rise;

He isn't the chairman of any board,
Not a Rockefeller, Baruch, or Ford,
Not a holder of stock or of bonds or debentures,
Not a banker, promoting financial ventures.
No, all of these worthies, without a doubt,
Are men we could struggle along without.

Who is it, then, we must coddle and humor,
Without whom we'd really be stuck? The consumer!
Oh, what a black day it would be, presuming
This hero were ever to stop consuming—
Were to wear no clothes and to eat no food
And to drink no drink that is bottled or brewed,

And to drive no car, and to build no home,
And to chew no gum, and to use no chrome.
So carefully handle with soft kid gloves
This person whom everyone dearly loves,
The plucky consumer, that man of gumption,
And hope he stays healthy—despite his consumption.

Many businessmen are finding that they can maintain or even improve their position against foreign competition—if they are willing to make the effort . . .

We *Can* Compete in World Markets

Condensed from International Management Digest

THIS COUNTRY has priced itself out of world markets. We just can't compete with low-cost producers in Europe and Japan." For the past two years, statements like these have echoed in U.S. board rooms, and a defeatist attitude toward foreign competition has threatened to engulf much of the business community.

But lately there have been signs of a more positive approach. Growing numbers of businessmen are taking a crack at the competition with all the means at their disposal.

Their strategy involves more than simply setting up manufacturing facilities overseas. Many companies are studying the design, production, marketing, and costs of made-in-U.S. products with an eye to meeting foreign competition at home and abroad. And some are blending imports and domestic output for a more complete and less expensive product line.

Industry leaders and high government officials are constantly telling the American businessman that he

must and can compete, that the U.S.A. has not "priced itself out of the market" and need not do so in the future. Government experts and private economists point out that U.S. prices have hardly risen any faster than those of competitor nations. They insist that far too much significance has been read into the U.S. 1958-59 export slump. The slump, it is argued, is more the result of temporary factors in world business than of competitive losses.

The U.S. Department of Commerce recently released a report which reinforces this argument. The Commerce Department study of American exports, by product and by market, 1954 through 1958, reveals that the U.S. market share for many important products has been well maintained. Severe competitive losses were confined to a few classes of products (autos, steel, tractors, certain fabrics) while many other exports held even or gained.

Yet these facts provide little com-

Digested with permission of the Editor from International Management Digest (February, 1960), © 1960 by McGraw-Hill Int'l. Corp., New York

fort to an American manufacturer whose low bid of \$13,250 to supply a lathe to a U.S. government agency is undercut by a German company quoting \$8,570; or whose heavy equipment offered overseas can be matched by a Japanese firm at half the price.

A few Americans react by demanding high tariff protection and practically abandoning exports. But a more aggressive majority is asking the government for better export credit and insurance facilities (Washington is considering it) and insisting that the government press foreign nations to reduce barriers against U.S. goods (Washington is already doing it with some success). And in their own plants, at home and abroad, these businessmen are taking action.

In the decade of the 1950's, American investment in overseas production increased two and a half times. This year, American business plans to spend close to \$2.5 billion on new plant and equipment outside the U.S.

These facilities are primarily geared to expand foreign markets. But there is a growing, little-publicized trend to have these plants produce parts or finished goods for the U.S. home market and, possibly, for re-export from the U.S. When a company has no foreign plant it will buy from an independent foreign producer.

No one knows the dollar value of these imports from U.S.-owned manufacturing plants. Possibly it is only \$500 million now. But in time such imports could become an important factor in the U.S. trade balance.

Here are some examples:

- Hoover Ball & Bearing Co., an

auto-supply company, recently opened a subassembly plant to process components from a Japanese affiliate and from Britain and Italy.

- Litton Industries (electronics and office machines) bought control of Svenska Dataregister AB. The plan: Sell the Swedish firm's cash registers through the many U.S. outlets of Monroe Calculating Machine Co., another Litton subsidiary.

- The Bendix company's French plant makes small refrigerators. Bendix now thinks these would sell well for use in trailers, boats, and cottages in the U.S.A. Rather than tool up in America, Bendix will bring them in from France.

For many U.S. executives, such importing seems natural to a "one-world" view of business operations: Produce where the cost for a product or component is most advantageous; combine output from plants in different countries for a full, international product line; sell wherever you can, from whichever plants are most convenient.

But despite the mounting emphasis on foreign plants and imports, most economists agree that some wholly U.S.-made products are still competitive in world markets. They mention jet aircraft, railway locomotives, complex electronic gear and tools, coal, and inexpensive, mass-produced women's wear.

And many businessmen declare that, given an all-out effort toward better design, tooling, and marketing—and a national determination to control inflation—the broad range of U.S. industry can hold its own.

The big question: Will the Americans make the effort? It will be

years before an answer can be given. But there is evidence now that manufacturers are accepting the challenge.

- General Electric Co. has begun to use huge, highly-automated tools to make turbines, and has redesigned large transformers so that they can be built on modular lines, allowing greater standardization.

- A hand-shovel maker stripped his product of nonessentials, mechanized his shop, and sells a good quality tool for just a few cents more than a Japanese import.

- Eastman Kodak Co. believes that mass production and constant new-product development, backed by heavy advertising, has helped it hold its place in a camera market flooded by imports.

The U.S. will this year be spending about \$12.5 billion on research and development. Many observers predict that the new processes and products flowing from this massive effort will help the U.S. maintain, and possibly improve, its position in a highly competitive world. ♦

Plant Protection: They Shall Not Pass

WITH ELECTRONIC EYES AND EARS linked to an automatic nerve center, a new type of guard system can protect an industrial plant sprawled over several acres.

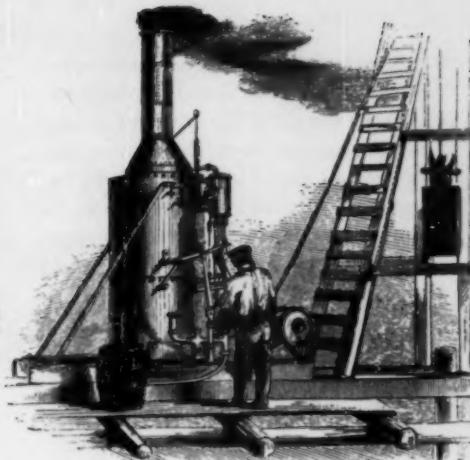
Aided by this electronic watchdog, one human guard seated at a master control center can immediately detect fires, keep an eye on all entrances, converse with anyone seeking entrance anywhere in the area, detect a sneak thief who might hide in a room until the buildings are closed, and perform other policing activities. Should the guard at the control center be overpowered by an intruder or collapse from illness, a warning is automatically flashed to police headquarters in the area.

The system, devised by Minneapolis-Honeywell Regulator Co., consists of a network of scattered electronic detection devices tied into a master control panel. These can include many components, such as noise and motion detectors, closed circuit television, two-way intercom systems, and an electronic fence. Use of a built-in compensator overcomes one old problem with such fences: The compensator prevents false alarms resulting from contact with the fence by birds, blowing paper, rain, sleet, snow, and wind.

The electronic network—which can also include fire detectors, holdup alarm switches, and magnetic controls that unlock gates from the master control center—gives centralized control over as many, or as few, buildings as desired. A test installation of the new system has been in operation for some time at the company's Brown Instruments Division in Philadelphia, and another system is presently being installed in the Chicago Art Institute.

—*The Spectator* 1/60

HUMAN ENGINEERING:



Building Products to Fit People

By Richard Moss

Condensed from Industrial Design

ON THE glittering new kitchen range, pots are boiling over, billows of steam are rising from the burner, flames are licking up out of a roaster, the glass door of the oven is opaque with soot; at the rear control panel, lights are flashing red, green, and yellow; dials are spinning, counters ticking, bells ringing, alarms buzzing. The disconcerted housewife turns helplessly to her puzzled husband, saying, "It's trying to tell me something, but I don't know what!"

Such was one cartoonist's caricature of a consumer product designed, apparently, to baffle the person destined to use it; for whatever chromium-plated virtues this range may have had, it was clearly not designed for facility of operation by its prospective operator. That is to say, it was not human-engineered.

Among designers, "human engineering" is perhaps most widely thought of as a department of com-

mon sense: the application of some fairly obvious facts about human beings to the design of machines and products which human beings must operate and use. One of the dangers in regarding human engineering as "just common sense" is that it leaves the designer free to take it or leave it. Our cartoonist's kitchen range was a burlesque of the designer who chose to leave it. Another danger is that, if human engineering is a question of common sense, the designer is free to feel he already knows everything about the subject.

But common sense is no longer adequate to the task; it no longer brings enough knowledge or experience to a problem in modern design. In the design of an airplane cockpit, for example, there is not room enough to be inefficient, or money enough to be careless of costly equipment. And in the design of complex instruments or machines, there are

Industrial Design (November, 1959), © 1959 by Whitney Publications, Inc.

too many variables for a common-sense approach to handle with perfect efficiency. The airplane is the classic example here, because scientific human engineering began during World War II when the need for a more efficient cockpit than anyone was yet prepared to design sparked tremendous programs of research into the capabilities and limitations of human beings in complex work situations.

The result of this research was not only the development of more efficient airplane control equipment, but also the accumulation of a vast body of new knowledge about the relationship of men and machines. However, this prodigious amount of information about the capabilities and limitations of human beings in work situations leaves the industrial designer faced with the problem of picking and choosing whatever data happen to be relevant to the particular design he is working on at the moment. He is also left to his own untrained resources to determine what information, of all that is available, is relevant. The literature on the subject does not provide him with a method of determining what information he needs and then making the most effective use of this information in the solution to a design problem.

One recent attempt to supply this need is based on a concept of the man-machine system as an organic unit, in which the machine is made to respond to the capacities and limitations of the operator.

The man-machine system concept is predicated on a simple and (once stated) rather obvious breakdown of the basic relationship between any

machine and its operator. This relationship consists of five sequential situations, in which there is (with examples):

1. Reception of information by the operator (*traffic light blinks green; policeman blows two shorts on his whistle*).
2. A decision by the operator (*to proceed*).
3. Action by the operator (*shifting to first, simultaneously releasing the clutch and depressing the accelerator*).
4. Functioning of the machine (*car goes*).
5. Feedback (*high-pitched sound of engine, speedometer reading of 15 mph*) and continuing control by the operator (*shifting to second, etc.*).

This analysis of any man-machine relationship (and it holds for a seamstress at her sewing-machine as well as for a mechanic at his lathe and a pilot in his cockpit) should not be hastily dismissed because of its deceptive simplicity; for it provides the basis of a carefully analytic approach to design which places primary emphasis on the adaptation of the machine to the abilities of the operator, rather than bending the operator to fit the machine. Human engineers regard such an approach to design as the best means of achieving maximum efficiency, comfort, safety, speed, and accuracy in the use of products and the operation of equipment.

This approach itself may be broken down into five phases, of which the first is a statement of the goal or objectives of the system. This again is deceptively simple, because while the statement of a problem always appears easy, the solution of the

problem depends on the accuracy of the statement.

Second, in terms of this statement of objectives, an analysis is made of the man-machine relationship. This consists of a complete listing of the *decisions* which the operator or machine must make, of the *information* he will need to make these decisions (information originating either in the machine itself or in other machines or other people), of the *actions* he must perform to carry out these decisions, and of the *general conditions* of the work situation (including environmental conditions—temperature, humidity, illumination, vibration, etc.—and characteristics of the prospective operator).

The third step consists of separate studies of each human factor in the man-machine relationship. The designer here attempts to determine what kinds of components of the system will be best suited to the capabilities and limitations of the prospective operator. The number of questions to be answered here depends on the nature and complexity of the objectives of the system. For example: How should the operator receive a piece of information, visually or aurally? How should this information be displayed to him? If visually, by what kind of display (meter, dial, light, etc.)? If aurally, by voice or sound signal? What is the optimum location of this informational display? What type of controls will be best suited for a particular action? What would be its optimum location? What is the optimum location of the operator?

And so on *ad infinitum*. This third phase is crucial, for it is here that

the designer may be most tempted to depend on common sense, while it is right here that common sense has been superseded by a great deal of precise knowledge on the subject.

Knowledge of human factors, as they figure in the design of equipment and products, falls into five broad categories of human capabilities and limitations: (1) vision, (2) hearing, (3) motor activity, (4) body dimensions, and (5) physical tolerances. Each of these areas of *human* characteristics corresponds to one of the *technological* elements of design: (1) visual display of information, (2) auditory communication, (3) controls, (4) component and workspace arrangement, and (5) environmental conditions.

To indicate the scope of this third phase of the design solution, suppose that the question, "How should the operator receive a particular piece of information, visually or aurally?" has been answered; that for such-and-such reasons, the designer decides to employ a visual display of information. When he asks himself the next question—"What kind of visual display will best convey this information to the operator?"—he is plunged into an ocean of facts and figures concerning the nature of human vision and the possible uses and relative effectiveness of a variety of types of visual display.

First of all, there are several aspects of vision which affect reading ability: visual acuity (the ability to perceive black and white detail at a distance), convergence (the process of focusing both eyes on an object), depth perception, color discrimination, and dark adaptation. Second,

visual acuity itself has been found to be subject to variation by several factors: the level of illumination, the length of exposure time, the difference in brightness between—for example—the numbers on a dial and the dial itself, the difference in brightness between the dial and the surrounding area, and the amount of glare. Third, instruments may display information in three different ways: quantitatively (as in the numerical readings of a thermometer), qualitatively (as in the deviations from normal indicated by an automobile temperature gauge, which generally reads "hot-normal-cold"), and in the form of check-readings (as, most simply, in the on-or-off condition of an electric light switch). Fourth, of all the possible types of visual-display instruments—the dials, pointers, counters, lights, etc., with which designers are familiar—certain ones have been found to be better than others for a particular type of information. Research has also revealed that within any one type of reading instrument (dials, say), certain design features (such as shape, type-face, needle position, etc.) make for easier, speedier, more accurate reading than others.

This knowledge, though at first blush it may look forbidding in its complexity, and though not all of it may seem relevant, can be of tremendous assistance to the industrial designer. It can save him the trouble of flying blind over a course someone has already mapped out—at least in part. Specifically, it can tell him what kind of visual display he needs for the particular design problem he

is faced with. And ideally, if the designer assiduously pursues the answers to all the other human-factor questions which the third phase of the design solution poses—questions about human hearing, motion, body dimensions, and physical tolerances, and the related technological problems of auditory communication, equipment controls, component and work-space arrangement, and environmental conditions (all of which are at least as complex as the questions of human vision and visual display)—then a design solution will not only be made easier, but should go further towards achieving maximum compatibility of man and machine.

The fourth phase in a completely human-engineered design is the relating of all these human factors in a preliminary layout of the design. The need for cooperation between designer and engineer at this point is particularly obvious.

In the fifth phase of design, a full-scale prototype is developed, so that layouts may be checked against human factors, engineering, and design requirements.

Human engineering is a relatively new field of advanced technology, and as a governing concept in design it has so far met with only limited application. Industrial designers can often be strenuously conservative. Only a very few of them, however, are unaware of the importance of human factors in any design that people are ultimately going to use, and they will look forward to a practical substantiation of the fruitfulness of the man-machine system approach to the design of consumer products. ♦

EXECUTIVE AND SCIENTIST:

Management Duel— or Dual Management?

By Stephen B. Miles, Jr., and Thomas E. Vail.

Condensed from Harvard Business Review

BUSINESSMEN MUST FACE UP to the question of how best to "manage" professional employees. Management, confronted with this new type of personnel, wants to absorb it without changing the old administration patterns shaped when business consisted only of workers and managers. But today's professional simply does not fit into either of these categories.

Decision- and policy-making are becoming increasingly dependent on technical and specialized knowledge. Scientists, engineers, physicians, economists, lawyers, psychologists, and other professionals have spent years studying problems once considered academic. Now, in an age of science, long-range planning, and interdependent activities, these problems fall within the province of business as well. Often, the professionals are the men who must make the business decisions and form basic policy for a company—regardless of the formal but nominal action of the top manager.

In this way, the manager's decision-making function is splitting off from his supervisory function. Logically, this growing separation in prac-

tice could be authorized in organization theory and planning as well.

Not only are the professionals emerging as those most qualified to take over decision-making and policy-making roles in many areas, but the manager should be freer to concentrate on supervising *people*. These people, of course, include the professionals, and today the manager must learn more about the goals, interests, and thinking patterns of the professional he is called on to "manage." What kind of person is the professional?

He feels his value to a company or other organization is inherent in his knowledge and specialized ability. Also, he is looking for a personal relationship to the organization, and cannot accept the impersonality of the giant corporation or government bureau as easily as its other employees can.

"Work" for the professional is not merely something he performs for an employer; it is something he intends doing in any case. He is willing to do this work according to any reasonable specifications laid down by the employer which do not, in the judgment

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of the professional, impair the value of that work and, by inference, the value of the professional himself.

In performing his work, the professional is mainly concerned with information and knowledge. Some degree of honesty and objectivity, therefore, becomes his hallmark, at least in theory. And he must use inner standards in assessing, for his own satisfaction, the quality of this work.

Because the professional's position in the organization is ambiguous, it is difficult to do more than generalize about his characteristics. This makes it even harder to determine how much leadership exists in his job, or what that leadership consists of. The leaders of any organization should be able to analyze and synthesize, and to work with people and ideas. This can be best done by splitting that leadership (the "executive function") between the manager and the professional. In other words, there should be *dual management*.

Who are the managers, and what is their role? The essence of management is a point of view, not the availability of persons to be supervised. The manager's job is to manage, and this includes directing the activities of groups within the organization and maintaining smooth relationships with other business and governmental establishments.

At present, in most organizations, the men who are assigned managerial responsibility believe that they are the executives and that all the others work for them. But this assumption is now being challenged. In nearly all companies with important scientific and engineering projects (espe-

cially in the defense industries), the managers are regarded by their scientific personnel as "housekeepers," whose main function is to save the scientist from worries about money, working conditions, personal relationships; provide him with the necessary facilities, material, and equipment; do what is necessary to keep the business in good condition; produce and sell the hardware resulting from the work of the scientist; and provide a climate in which he can do his most productive and creative work.

Many of these activities, regarded by the scientist as a means of providing a suitable work environment for him, are regarded by the manager as ends in themselves. But because of differences in point of view and in values, and the increasing development of separate languages for different professions, the scientist and the manager today frequently find themselves at loggerheads. Each thinks of himself as the most important. But who is really the boss?

The conflicting efforts of managers and scientists to discharge what they consider their duties put both on the defensive. If they were to regard the executive role as one suitable for both managers and professionals, their present confused hostility could be changed into orderly mutual support.

For his part, the manager would restrict himself to internal relations within the organization and to relations between his and other organizations. He would be able to determine how economic and material rewards can be used effectively, and to accept human beings as they are. He would have the personal capacity to absorb the tensions and stresses of those in

his group, to help them work better, and to help them realize themselves more completely. A good manager would enjoy deflecting credit to his people and be on the lookout for merit and brilliance among them, even when it puts him in the shade. Finally, he would be able to inspire, to integrate minds as well as bodies.

On the other hand, in areas where specialized understanding is required, the professional would set standards, make decisions, form policies, and assume control of projects. From the professional's point of view, the job of the manager would often be restricted to administering detail and providing communications. Actually, however, the manager would be seeking constantly to maintain alignment between a given project and the organization as a whole, and helping to set up project organization in such a way that ability would rise to the top.

Managers would continue to prescribe schedules, money, and manpower, but within these limits the professional would be unhampered. When one phase of the project is

finished, the project organization would be realigned, retaining the original members whose knowledge, ability, and interest continue to be needed, and absorbing any new needed personnel. This reorganization would be a cooperative process between the project administrator (i.e., the "manager"), the original professional project members, and the new professionals called in.

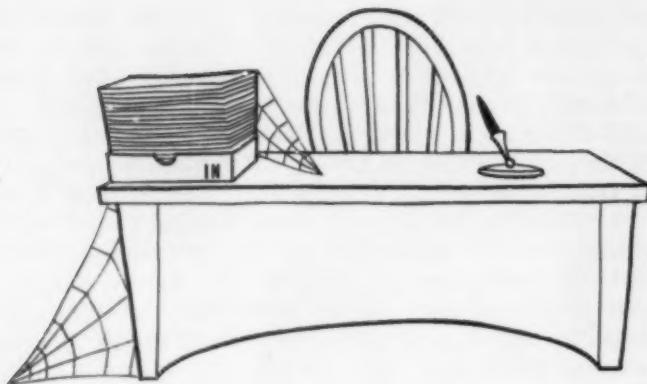
Specific ways by which the present unity of management would be replaced by the manager-professional duality cannot, of course, be glibly laid out. But today the manager is "moving over." His increasing preoccupation with human relations and necessary organizational politics is leaving a vacuum in the area of goals and purposes of the organization and its projects. At the same time, the professional is beginning to raise his voice for his rightful place in the organization. Now is the time for us to ask ourselves if we are thinking flexibly enough to invent new concepts as to where that rightful place should be. ♦

Annual Reports Grow Fatter

MORE AND MORE FACTS are being stuffed into annual reports to stockholders every year, according to a survey by the American Institute of Certified Public Accountants. To balance the extra data, more than two-thirds of 600 leading industrial corporations included an easy-to-read summary last year. A decade ago, only one-third offered such summaries.

The term "balance sheet" remains the most popular label for annual statements, but such variants as "statement of financial position" are picking up support. The traditional "profit and loss statement" has almost disappeared, being replaced by "income statement" and "statement of earnings."

—Business Week 11/7/59



Older Executives— Retired on the Job?

By Melvin Anshen

Condensed from Think

DIVISION MANAGER. About 50 years old. Not vice-presidential material. Do not promote."

Every medium-sized or larger company has its share of such men: older executives in responsible positions, who, in the judgment of top management, have reached the limit of their potential. They're resting on their oars, waiting for retirement.

The corporate waste that results from managers retiring on the job is not confined to their own lethargy, nor even to the cost of paying them high salaries for unsatisfactory performances. Such performances also

sap the drive for personal growth of all the managers under their supervision. No organization can afford to let this stunted growth extend through two management generations.

Several companies are exploring ways of coping with the problem. Out of their experience, as well as out of research in the dynamics of human performance, some tentative answers are emerging:

You can easily go wrong in concluding that a manager has attained his top potential. After it rises for many years, a manager's development may pause for other reasons. He may

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be bored by lack of challenge. He may feel that he has been passed over for further advancement. He may be disturbed by recognition of the aging process in himself. He may not appreciate his value as a prime influence on the constructive growth of his subordinates.

What is the solution? First, find the causes for the halt in growth. Second, find the incentives that will release unused abilities. Solving the problem is worth the effort. Mature managers who have stopped growing are, by the evidence of their own earlier performances, men of above-average ability and drive. Their accumulated experience shouldn't be wasted. Dollar for dollar, investing in the rejuvenation of older managers will yield at least as much as investing in the hiring, training, and coaching of younger men.

Younger managers are powerfully motivated by the desire to achieve status and earnings. This desire reflects, of course, personal needs and family responsibilities. But later, this desire thins out; many managers, as they grow older, realize some of their career objectives, discharge some of their family commitments, and come to accept their personal limitations (or bad luck). Men whose accomplishments fall short of their aspirations are likely to adjust the level of their aspirations downward.

As one 51-year-old manager put it: "When I was a young man in this company, I set my sights for the president's chair. As I grew older, I learned that there are other valuable things besides money and rank—things like leisure and being with my kids as they grow up. So, somewhere

along the way, I settled for a job at my present level. There's enough money here to give us most of the things we want. I'm satisfied with my place in the organization. I don't have to be ashamed of my achievement."

The lessening of physical powers is likely to contribute, in subtle ways, to this weakening of the achievement drive. Directly, the aging process dictates slowing down. Indirectly, a lower energy level may enable a man to see attractions in other objectives that make smaller demands. In the aging process, the risk-seeking and risk-taking attitude may be replaced by a strengthened desire for security.

There might arise, too, a sour attitude toward the organization's treatment of the individual. Many managers might echo one man's statement: "You have to get used to some pretty unfair treatment around here. They don't always reward outstanding performance as they should. They let you sit where you are, while they promote the fellow with connections or the right background."

Clues for remedial action can be found in these observations on weakened ambition, the aging process, and negative attitudes. The diminishing drive for status achievement must be replaced by some other positive and appropriate motivation if growth is to continue. Moreover, to be fully effective, it must be underwritten by organization performance that backs up policy statements.

One organization was planning a comprehensive internal development program for its managers immediately below the vice-presidential level. There was doubt about the value or

wisdom of permitting older managers to participate. In confidential interviews, some of these older men had already indicated their skepticism about the development program and their lack of interest in it. Finally, the top executives left the decision to participate to each man.

Few of these senior managers elected to attend the early sessions. There was no pressure on them to change their minds. As time passed, however, and more managers throughout the company took part in the course and reported favorably on their experience, volunteering by the older managers picked up. Ultimately, practically every one of them attended, including men within two or three years of the mandatory retirement age.

With rare exceptions, the older executives reacted positively; often they were enthusiastic. One man admitted: "I really went to the course with a chip on my shoulder. But when it was over, I realized that it was the finest thing the company has ever done for its managers. I haven't enough time with the company to translate all I've learned into performance on my own job. But I

see a dozen ways to improve my influence on the fellows I supervise and help them build their abilities for the future."

The younger managers benefited, too. One said: "We've learned a lot from these older men. And we found that even a man who isn't going any higher and is nearing retirement has a lot to contribute."

Many techniques that are widely recognized as valuable for younger managers can be equally useful for older men in terminal positions. Job rotation is an example: a new assignment is a good way to energize the performance of a manager who is falling asleep in a familiar job.

Older managers can be reminded that they are the single most powerful influence on their juniors, and that they should use their influence constructively. Beyond this, they need specific proof that this influence is essential to the continuing health of the business. This can be accomplished, at least in part, by encouraging the older men to perform actively in educational courses. Your message—and their experience—should tell them: "You are here to teach as well as learn." ♦

BUSES ARE LEAVING THE TURNPIKE and heading for the board room. Several Ohio firms are giving buses—road-weary from thousands of miles of travel—new lives as luxury carriers for corporate executives. *The Wall Street Journal* reports that companies in increasing numbers are buying the vehicles, fitting them out with hi-fi's, food freezers, and all the comforts of home, and using them to transport top men to remote plants or nearby towns for business. Cost of the buses ranges from \$20,000 to \$75,000.

Shall we consider a merger? Companies pondering this question should realize that there are many advantages that may not be immediately apparent . . .

What Makes Mergers Worth While

By William H. Coleman

Condensed from Management Methods

MANY EXECUTIVES think of mergers and acquisitions only in terms of a windfall or a dire emergency.

This is a mistake. Mergers and acquisitions represent methods of management that can be used—by small companies as well as large ones—to create a variety of positive results.

It may take a company many years, using internal methods, to:

- Diversify
- Build a top engineering department
- Develop a line of credit
- Replace an aging management
- Create profitable new products
- Reach untapped markets
- Build a larger plant.

But by means of mergers or acquisitions, any of these objectives can be reached in a matter of months.

Managements that have successfully carried out mergers and acquisitions seem to have four traits in common: They know what they hope to achieve, how to size up another firm, and how to finance the deal they want; and they realize the importance of the human element.

In planning a merger program,

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management must decide what it hopes to achieve. Some corporate objectives that motivate successful mergers are:

- One partner has a surplus of administrative skill that may be applied profitably to the other.
- A stronger competitive position will be gained by combining products to form an expanded product line.
- Surplus production capacity will be utilized.
- By combining the sales facilities, it will be possible to sell a greater volume at a higher rate of profit than either partner could do separately.
- A needed asset will be obtained more cheaply than by buying, building, or developing it from scratch.

In addition to pinpointing objectives, planning also means deciding how you are going to locate merger prospects. The management that decides to go ahead with a merger program and then waits for a suitable prospect to make itself known usually waits a long time. To find companies you must notify your directors, business acquaintances, attorneys, brokers, bankers, and accountants. Often it

means running advertisements in business publications and following up on ads placed by other companies. Study the business scene to locate the ideal partner that will meet corporate objectives. Be wary of acquisitions that seem to be great bargains.

The good company available for a bargain price is rare. Some years ago Rockwell Manufacturing Co. was considering the acquisition of a middle-sized tool manufacturer whose products would have extended Rockwell's own line. The price was a bargain, and during the first round of investigations the deal looked very good. During a second look, some new facts emerged. The president of the prospect company was the majority shareholder. The bulk of the management skill and energy lay in him, and he wanted to sell to retire. If Rockwell had completed the deal, it would have purchased a corporate corpse.

Here are other reasons for "bargains" that should make a company cautious: the prospect is in a depressed industry and growth is limited; it has a bad labor problem; substantial capital investments are necessary to make it competitive, with little assurance it can remain that way; and certain contractual arrangements with management and other individuals or groups put its ultimate profitability in doubt.

Sizing up a company should include a careful check of six areas:

- Balance sheet items (including receivables and inventory)
- Fixed assets (plant and equipment)
- Tax factors (recent and complete audit, past taxes due)

- Contingent liabilities (long-term contracts, stock agreements)

- Industry implications (state of the industry, the competition; impending obsolescence of product or plant)

- Assessment of future earnings.

When it comes to financing a merger, cash—contrary to popular belief—is not the most common means. Noncash financing can be an extremely complex affair, and every company should obtain the very best legal and financial counsel it can. In many instances, mergers and acquisitions that are good for both parties fail to go through because neither group has sufficient creativity or knowledge to come up with a financial plan that satisfies the needs of both sides.*

Finally, a successful merger program is not a mechanical exercise. A management cannot simply follow a good set of rules and expect success to be the inevitable result. People and their needs are an important part of any merger.

If you and your organization purchase a business staffed with competent people, you must be skillful enough and careful enough to encourage them to stay with you and do the kind of a job that will help you build the business. If you lose the company's key personnel through shortsighted personnel policies, your acquisition program will be a complete shambles. ♦

* A complete discussion of corporate assessment and of techniques of financing acquisitions is included in *Sizing Up New Acquisitions*, THE MANAGEMENT REVIEW, February, 1960.

The smothering embrace of the organization may be squeezing originality and initiative out of today's corporations . . .

IS BUSINESS CRUSHING CREATIVITY?

By Louis E. Wolfson

HOW CAN AMERICAN BUSINESS recapture its pioneering spirit and end the threat of conformity? In too many firms, business discourages the executive from pioneering and exploring. Instead, business presses him increasingly into conformity; encourages him, if not orders him, to do as others have done before; looks askance at originality and initiative. Businessmen talk about the need for "new blood," but they generally want it to run to the same blood type.

In considering the problem, analyze yourself and your company's attitudes. Ask yourself these seven questions:

1. Are you willing to take a calculated risk on a good new idea, or do you feel more secure if someone else tries it first? Too many business people will try something new only

Condensed from an address by Mr. Wolfson before the Executives' Club of Chicago, October 16, 1959.



penalized for a suggestion that doesn't work out?

5. Do you give credit to others for a successful idea, or claim it as your own?

6. Do you judge the creative ability of a present or potential employee strictly on his merits, regardless of race, color, or creed?

7. Last, but far from least, are you as venturesome and receptive to pioneering ideas now as you were when you were "on the way up"? No business, or nation, can stand still. We must move forward or eventually lose ground.

Now let us look at some methods that are used to help solve our problem.

Some industries rely primarily on the careful selection of personnel. In every instance, personnel departments should keep abreast of the latest applicable findings of the social sciences. Today's selection tools need refining, but they are still helpful.

Make sure your employment office understands your instructions. Personnel departments usually hire the kind of people they think the executive really wants, regardless of official announcements. You must make it clear, by deed as well as word, that company management wants to hire creative people.

Also, realize that you will not find the ideal person for every position. Despite all the available tests to determine the right man for each job, there are just not enough such people to go around. But if you carefully select key executive personnel, they can, by example, progressively develop the environment that encourages constructive individualism.

And constructive individualists *do* need encouragement. Without it, they lose their push and drive. Often what looks like laziness is lack of motivation. Their failure is the company's loss as well as their own.

The initial selection of personnel is only half the problem. After your people are on the job, you must constantly encourage further development of the qualities you want. Industry uses a number of methods to do this. This entire field is so new, and developing so rapidly, that so far there is no set pattern, but here are some workable approaches:

1. Many companies use management consultants to solve company problems through discussion, exchange of opinion, and suggestions for new policies and practices. Among such companies are General Aniline & Film, Koppers Company, and Allied Chemical. Some organizations use committees at many policy and operational levels. Such committees can be very useful if they do not get too involved in their own functioning and if they don't deteriorate into yes-men groups.

2. Conferences and training courses are used effectively to further constructive individualism. They vary in subject matter from problem-finding to creative thinking, and are used by such companies as U.S. Steel, Polaroid, Worthington Corporation, and General Electric.

The American Alcolac Corporation uses an interesting twist on this idea. Alcolac requires every professional and managerial organization member to write a periodic letter to his respective boss, outlining his objectives, embodying suggestions for changes

and improvements, and outlining future plans for his own work. The reports are initially required every six months; the time interval is eventually lengthened to about one year for executives who have been with the company a while.

3. American Brake Shoe uses a more daring approach: top-to-bottom delegation of authority. The company bases its philosophy on "freedom to fail," defined as "freedom to act, to take risks, to make decisions—and to do so without fear of the consequences." Its rank-and-file people, as well as its executives on all levels, solve problems. Foremen, for instance, help negotiate union contracts. The company does not penalize a man for failure if he has sincerely and intelligently tried a new idea.

4. The Kimberly-Clark Corporation uses a reserve "bank" of men of diverse backgrounds, who act as a team to solve problems. None of them are specialists, though they may consult specialists if they feel it desir-

able. This small group works on any problems its members believe important. It has its own budget, laboratory, and machine shop. Such a plan can be valuable, but it raises two questions. How many companies can afford to support such a unit? And might it produce a "creative elite" so powerful in prestige that individual initiative in others is discouraged?

5. Remington Rand gives the old-time suggestion box a new dimension. Its suggestion plan administrator encourages suggestions and helps sell them to management. Only one limitation applies: The would-be innovator must have his idea pretty well developed before he comes to the administrator.

In business administration, specialist skills alone are not enough. Top executives must be men of the broadest knowledge and understanding. With the growing complexity of business and society, an increasingly higher degree of judgment is demanded at every level. ♦

The Fountain of Youth

THE AVERAGE INDUSTRIAL PLANT is three years younger today than it was 15 years ago. This paradox, reported by *The Biddle Survey*, emerges from a recent study conducted by the Machinery and Allied Products Institute. The Institute's latest study of the condition of business capital goods in our economy reveals that replacement has lowered the average age of plants and equipment.

Plants—defined as buildings and structures other than residential—average 24 years of age at the present, as against 27 years of age at the end of World War II. Similarly, industrial equipment is, on the average, 9 years old now, as compared to 11 years old at the end of the war.

Wake Up Your Sleeping Products!

By Douglas P. Gould

Condensed from *American Business*

DOES YOUR COMPANY have products and services that are asleep? Many firms have solid—but snoozing—products and services that can bring new and unsuspected sources of profit. The problem is how to awaken them.

Here are nine frequently used techniques for bringing them back to life:

1. *Could a different type of sales promotion revive the product?* A hot maple-flavored oat cereal called Maypo was introduced in New England ten years ago by the Maltex Company. After six years of plugging the product through merchandising campaigns, sales promotion, and newspaper advertising, the Maltex Company resigned itself to a mediocre sales future. Then Maltex was acquired by Heublein, Inc., which conducted a product analysis to determine how the cereal could be awakened. It was decided that TV was the natural advertising outlet for Maypo because children were its primary consumers. A modest local spot-TV test campaign of animated cartoons directed to children and their parents was an immediate success. The company has steadily expanded the TV spot commercial program, Maypo sales have spiraled, and distribution has been extended to all markets in the northern half of the United States.

2. *If the product won't sell, will it rent or lease?* A company that produced a high-cost, special-purpose machine found that its price tended to limit the market. Although the company knew there was real need for the product in the industry for which it was developed, this need was never translated into sales. On the advice of a management consultant, who prepared a market survey for the company, it was decided to lease the product. The immediate results: rising demand for the machines and swiftly increasing profits.

3. *Are you pushing servicing and replacement parts hard enough?* Many companies don't realize the profit potential of expanding the servicing for their products and selling replacement parts. Few products produce as much as 30 per cent profit margin on each sales dollar. But the profit margin available through the sale of parts and servicing is often 60 to 70 per cent of the sales dollar.

4. *Can you switch to a cheaper distribution method without hurting volume substantially?* A regional food-products manufacturer sold a bakery line door-to-door over established routes in medium- and small-sized communities. Profits were unsatisfactory because of the heavy fixed cost of the sales trucks and the expenses of service selling. The company decided

American Business (January, 1960), © 1960 by Dartnell Publications, Inc.

to switch to regular retail-store distribution supported by heavy local advertising programs. The fixed cost of the bakery operation was reduced and profits greatly increased, even though volume declined somewhat.

5. *Are there new uses for your products?* A manufacturer of men's white cotton gloves traditionally sold his products only for formal affairs and for use by undertakers. Analysis of the market, however, revealed that such gloves could be used by inspectors of precision parts in the electronics industry, and in others where perspiration acids affected the final quality of the product. Similarly, industrial goggles are used by many home workshop hobbyists, chicken wire by florists, and high-fashion fabrics by makers of automobile seat covers.

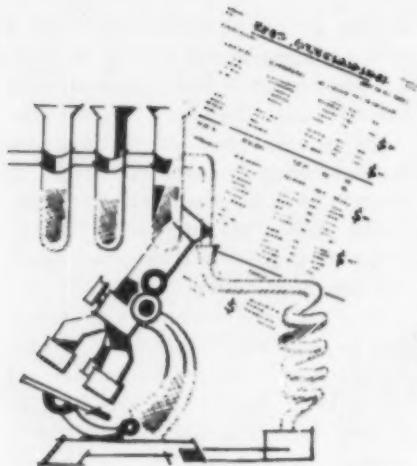
6. *Can an old product be modified to meet current demand?* A manufacturer of work shoes (high shoes with several inches of lacing) was facing a declining market. Workers no longer needed such cumbersome shoes, and the product seemed fated to go to sleep. Analysis of the market, however, showed that there was a demand for a well-designed work shoe, equipped with safety toes, that looked like a dress shoe. Also, the analysis revealed, work shoes were difficult to sell through traditional shoe stores; vans carrying complete lines to industrial plants would be more effective. The changes were made, and both sales and profits improved.

7. *Can the cost of a product be substantially reduced and additional markets developed?* White Sewing Machine Corporation found that its products were very costly to manu-

facture in the United States. As a result, a considerable part of its market was lost to Italian, Japanese, and German manufacturers. White decided to end most of its domestic manufacturing operations and to import foreign machines for marketing under its own label. By so doing, it prevented a complete product line from falling asleep.

8. *Can by-products of your operation be sold more profitably?* A soap company had a high inventory of red oil, a by-product which was sold at a very modest profit. Recently the company discovered that a work soap was selling unusually well in the South because women found it made an effective shampoo. This particular soap had a higher content of red oil than other soaps. By developing and marketing a shampoo having a high red oil content, the company turned its by-product into profit.

9. *Is the current consumer climate favorable for reintroducing a product that failed before?* Timing is an important factor in the success of a new product. A perfectly good product introduced at a reasonable price may have failed because the time was not quite right. Such a product can often be dusted off, re-engineered, and repackaged to provide an interesting "new product." After World War II, a number of automobile manufacturers failed in their attempt to introduce "economy autos." At that time, the public, fed up with the rigors of war, wanted luxury, not economy. By contrast, the compact cars introduced in the past few months have scored promising sales, primarily because of the consumers' changed mood. ♦



TODAY'S CHEMISTRY and TOMORROW'S BUSINESS

By Melvin Mandell

Condensed from Dun's Review and Modern Industry

RIIGHT NOW, in the laboratories of the chemical industry, work is under way that will revolutionize many familiar products and spell new profit opportunities for alert companies.

To chart upcoming chemical developments, *Dun's Review* surveyed leading chemists here and abroad. Chemists in industry, in universities, and in independent research organizations were asked to evaluate known laboratory projects and products, now in the pilot-plant stage, which will find their way to the commercial market within three to five years.

Of all the chemical advances mentioned, the one the experts are most enthusiastic about is the fuel cell. A laboratory curiosity for 150 years, this device for converting chemical energy into electricity without any moving parts is now rapidly approaching commercialization.

The incentive to perfect it is strong: in contrast to the 40 per cent top efficiency of the biggest, most advanced heat engines, the fuel cell converts 70 per cent or more of the input energy into electricity. Within a few years, the experts believe, the fuel cell will stimulate radical changes in such familiar industrial equipment as welding machines, in-plant vehicles, cars, and trucks. There is a definite advantage in using fuel cells to power an electric fork-lift truck, for example. Since the source of energy for the fuel cell is external to it, the truck, unlike present electric vehicles, doesn't have to be pulled out of service after every shift to have its battery recharged or exchanged. One experimental fuel cell already has run a fork-lift truck in England.

The survey respondents foresee a

Dun's Review and Modern Industry (January, 1960), © 1960 by Dun & Bradstreet Publications Corporation.

vastly greater variety of plastics, which will have widespread applications, particularly in packaging and the metalworking industry. Some new experimental plastics approach the common nonferrous metals in strength and melting point. Although today they are much costlier than their metal rivals, they can be formed to close tolerances so quickly that they offer industry important advantages in processing costs.

The experts also see benefits for industry in the "new" metals now being developed in chemical laboratories. Actually, of course, there are no new metals. All the stable elements in the Periodic Table have long since been isolated. However, many of them are available only in minute quantities or in a useless impure form. It is up to the chemical industries, therefore, to find cheap ways of removing these metals from the compound or "chemical" form in which they are hidden.

Even though many of these hitherto rare metals (columbium, tantalum, molybdenum, rhenium, scandium, and others) will eventually be available in tonnage quantities, none will challenge steel or aluminum, according to the experts. But each step forward in technology generates situations where the special properties of one of these metals uniquely fits the specifications. In rocket nozzles, in the incandescent bowels of nuclear reactors, in minute transistors, these metals prove their mettle where conventional materials soon expire or gum up the works.

Air transportation may also be revolutionized by chemical developments, the chemists surveyed predict.

Many of them foresee 3,000-mile-per-hour airliners, powered by solid and liquid fuels now being created for space vehicles.

As these fuels are made available for commercial craft, an even greater expansion and mobility of markets will be possible. An executive, for example, will be able to fly from New York to a business conference in Tokyo in two hours.

In five to ten years, the experts say, new chemical techniques for taking the "sea" out of seawater will be a vital force in countering the world's water shortage. Large areas in the United States and abroad are crippled by periodic droughts. As a result, industry is often unwilling to establish plants in these areas. And for manufacturing activities that depend on large volumes of water—such as chemical, food processing, oil refining, and metalworking—present evaporation and distillation techniques for purifying brackish or salt water are costly.

But the chemical industry now has developed techniques, such as ion-exchange, which will sharply reduce the cost of seawater conversion when used on a large scale. The experts envision large conversion plants (possibly powered by nuclear energy) pumping fresh water to arid regions miles from a salt water source.

These, in the opinion of the experts, are the most important advances being made in the chemical industry today. However, they also cite these other developments of future significance to industry:

- New catalysts and cracking techniques for improving present fuels or for turning heavy hydrocarbons,

such as asphalt, into usable fuels or plastics. Other catalysts are being developed to remove the dangerous elements in vehicle exhausts, permitting wider use of gasoline vehicles inside factories.

- New high-temperature adhesives.
- New anticorrosion coatings and inhibitors.
- New synthetic rubbers with such unusually long life that a car may wear out before the tires.
- New insulating materials, enabling designers to conceive more compact electric motors that run hotter, which means greater capacity, too.
- New synthetic lubricants that

can function over an enormous range of temperatures.

- Advances in electrochemistry that mean better storage batteries for electric industrial trucks and better plated protective coatings.

- Super-conducting materials, which could sharply cut the losses in—and cost of—long-distance transmission of electricity.

The chemical progress outlined here is based on known experiments. However, many significant research projects are unquestionably going on behind locked laboratory doors. How they will eventually affect industry is anybody's guess. ♦

Deep Cold: A Hot Item

RESEARCHERS ARE AT WORK creating a new science in which life processes can be suspended, conventional materials take on unpredictable properties, and giant computers can be compressed to the dimensions of a hat box.

The science is cryogenics, which is built around the use of ultra-cold temperatures ranging down towards absolute zero (minus 459.6° Fahrenheit), the level at which all molecular activity theoretically ceases.

Although still in its infancy, cryogenics engineering already is having its impact on missiles, electronic computing, steelmaking, and biochemistry. There is now an increasing market, for example, for industrial gases in liquid form, a conversion process in which their temperatures descend to at least minus 400 degrees Fahrenheit. Liquid hydrogen serves as a rocket fuel, while liquid oxygen, used as a decarburing agent, allows the faster production of steel. In the medical field, researchers are evolving ways of freezing whole blood and storing it for years. Electronics engineers are developing tiny computers—using the principle of "superconductivity," which practically eliminates electrical resistance in materials cooled to cryogenic temperatures—which will not need tubes, transistors, or magnetic cores. And scientists are now able to "kill" living things with cold, dehydrate them, and bring them back to life again. This may point the way to freezing future missile passengers so that they travel through space as living icicles.

—*The New York Times*, 1/3/60

CUSTOMS AND POLICIES IN THE OFFICE

A Survey of Company Practices

By Charles E. Ginder

Condensed from Office Executive

TODAY's typical male office worker may wear a sport shirt in warm weather, enjoy two coffee breaks a day, and get a snack from a dispensing machine right in the building. His female co-worker may continue working during pregnancy and while her children are pre-school age, and she may even be paid for the time she must remain home when her small children are ill.

These and other privileges enjoyed by the modern office worker are reported in a recent survey of office customs conducted by the National Office Management Association. With more than 2,000 business, industrial, and service organizations participating, NOMA's survey offers a representative picture of what's being done in offices throughout the nation.

About 80 per cent of the survey respondents grant official rest periods or coffee breaks. Interestingly, about 8 per cent of this group grant the privilege to women only and about 1 per cent grant it to men only. However, many companies among the 20 per cent that do not give official rest periods close their eyes if employees take an unauthorized coffee break.

Where do the employees obtain their snacks? About 58 per cent of the companies surveyed provide dispensing or vending machines in the building. About 20 per cent have company-operated eating facilities; 14 per cent have commercially-operated eating facilities; and 9 per cent have a company-operated portable snack bar. In 17 per cent of the companies, the employees have to obtain their snacks off the premises.

One of the customs that has changed substantially in recent years concerns smoking privileges for women. More and more companies are giving the girls the same rights in this respect as the men.

Among the companies surveyed, for example, about 75 per cent permit both men and women to smoke in the office, without any restrictions. Another 20 per cent of the companies impose smoking restrictions—restrictions which apply to women four times as frequently as they do to men. Only 5 per cent of the companies prohibit smoking.

One subject on which management opinion frequently differs is the advisability of hiring a man and his

Office Executive (February, 1960), © 1960 by National Office Management Association.

wife to work in the same company. Almost 58 per cent of the respondents treat employment applications of a husband and wife as they do any other applications; 38.2 per cent reject the application of either the wife or the husband because of the relationship, and 4.1 per cent have no set policy.

What do companies do if two employees in the same department marry each other? In this case, 10.7 per cent of the companies dismiss the wife; 48.7 per cent permit the husband and wife to continue working in the same department; and 26.3 per cent transfer one of the newlyweds to another department if possible. The remaining 14.3 per cent report no established policy for this situation.

In recent years, more and more women have continued to work after marriage. The NOMA survey reveals that 86.3 per cent of the responding companies hire women who have pre-school children, and 61 per cent believe that these women are not absent any more frequently than other office employees.

About 43 per cent of the companies will even pay sick leave when women are absent because their young children are ill. Only about 12 per cent of the respondents do not hire women who have children of pre-school age. A total of about 16 per cent have no policy on this question, feel no need to establish one, or "don't know."

Regarding pregnant employees, company policy tends to be liberal. In the NOMA survey, less than 3 per cent of the companies do not permit pregnant employees to continue work-

ing. Only 44 per cent of the respondents have a set policy as to when the pregnant employee must stop working; in most of these companies, she may continue to work five to six months.

After pregnancy, the employee is permitted by 68 per cent of the companies to return to work, provided the time interval between the end of pregnancy and the return to work complies with state law and/or company policy. However, many of the companies will rehire the employee in her former position only if it is vacant at the time; others treat the returning employee the same way as they treat a new one.

On the subject of dressing for the office, 89 per cent of the survey respondents have no rules or restrictions. The majority of this group, however, expect their office employees to show good taste in their office clothes.

In 84 per cent of the companies, the men may remove their coats at any time; 5 per cent permit it only during warm weather. Only 1 per cent prohibit the men from removing their jackets, but 10 per cent forbid it where the men have frequent contact with the public.

In warm weather, male employees may wear sport shirts in the office in 50 per cent of the companies surveyed. Sport shirts are forbidden in about 31 per cent of the companies, while 19 per cent permit the sport shirts to be worn if the employee does not meet the public.

Apparently, management has little objection to employees soliciting funds from each other for charity organizations such as the Red Cross

and the United Fund. About 78 per cent of the companies surveyed permit it, while about 22 per cent place restrictions on such collections.

On the other hand, special collections—such as obtaining financial aid for employees, selling chance books, or running pools on sports events—meet with some opposition. About 59 per cent of the companies prohibit soliciting money to help employees; roughly 35 per cent allow it. Close to 6 per cent report that special collections have never been needed.

About 51 per cent of the companies prohibit selling chance books or pool tickets. But, they say, this restriction is largely ignored by the employees, especially at World Series time. About 47 per cent of the respondents do permit the sale of chance books (generally for church affairs) and pool tickets (generally for baseball and football games). Only 2 per cent of the companies report that this problem has never arisen in their offices.

Despite the criticism frequently directed at office Christmas parties, 65 per cent of the companies sur-

veyed have one. The majority of these companies invite office personnel only, and usually conduct the affair during the evening in a hotel, restaurant, or club. The remainder of the respondents give the party on company property and on company time. In 96 per cent of the companies, attendance at the Christmas party is optional.

Of the companies that have Christmas parties, 62 per cent pay for it; in 19 per cent, the employees pay for the Christmas party; and in 14 per cent, the employees and the company share the expenses.

About 53 per cent of the companies that have an employee picnic pay for it; 27 per cent share the expenses with the employees; and in 20 per cent, the employees bear the cost.

While the NOMA survey on office customs does not reveal startlingly new trends, it does show that today's office customs are far more liberal—and are being enjoyed by a substantially larger proportion of office employees—than ten or twenty years ago. ♦

Play It Again, Sam

A PRINCIPLE borrowed from the old player piano is helping to save secretaries the drudgery of typing the same message over and over again.

Cornwall & Patterson Co. (Bridgeport, Conn.) has adapted the player piano's tracker bar—a brass bar with holes in it—to automatic typewriters. In the piano, the music roll—with its punched-out holes—passes across the bar; when a hole on the roll coincides with one on the bar, a stream of air is released, striking the proper piano key and producing a musical note.

In the new automatic typewriter, punched-out tape replaces the music roll. When the air is released, a typewriter key taps out the desired letter.

—*The New Englander* 1/60



THEY FIND EXECUTIVE TALENT

Condensed from Business Week

TO CLIENTS, he's a whiz at finding just the right man. To the man who's hired, he's a Santa. To a company that's raided, he's a pirate. To himself, he's a vital aid to industry.

"He" represents a fast-multiplying breed of management middlemen—the independent executive recruiter or searcher. His job is to find management talent for companies that, for one reason or another, can't fill executive vacancies from their own ranks.

The recruiters see themselves as a group of specialized consultants to management. As part of their effort to win recognition on those terms, eight New York search concerns recently formed the Association of Executive Recruiting Consultants. Their aim is to define their new profession and set high ethical standards for its growing number of practitioners.

The executive search business is comparatively new. Before World War II, most companies scouted their own talent or turned to a few management consultants who were doing recruiting on the side. Today, there are at least 90 firms in the search field, according to one list.

The business of bringing com-

panies and executives together is complex—and a lot of people are in on it. There are, of course, the employment agencies, which match job seekers against openings listed by employers. Agencies usually collect a fee from the applicants, though the employer may pay it for somebody he really needs. Search firms, on the other hand, work only for the executive-hunting company, and the Association's code of ethics forbids accepting any payment from a candidate.

Employment agencies are paid on a contingency basis; they collect only if they complete the deal. Search firms are reimbursed for professional services, not for a "body." The client pays even if the searchers can't find a man who satisfies him—though the fee in that case may be a little lower.

Most search firms follow much the same procedure:

Client companies come by word-of-mouth recommendation, since the talent hunters don't advertise. Once hired, the recruiter spends several days getting thoroughly acquainted with the company and its community. He discusses the specifications of the

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job with a top executive—usually the president or executive vice president.

This may involve some organization analysis; smaller companies, in particular, often aren't sure just what they want. It may require a review of compensation policies to determine whether the client should boost the job's salary to get his man.

From reference books and his files, the recruiter picks "sources"—professors, industry leaders, executives of appropriate companies, and personal friends—who are likely to know a potential candidate for the job. From them he collects recommendations; for a single search, telephone bills alone can run \$1,000 or more (the client pays such expenses).

Most search firms maintain extensive files. Handy Associates, Inc., in New York, for example, has IBM cards describing nearly 100,000 executives, most of whom have no idea they are there. Chiefly the files are used to track down information sources. Few of the men who get hired come from the files; even fewer come from those who sought out the recruiter. Most firms report that only 1 per cent to 10 per cent of the men they have recruited were unemployed or job-hunting at the time.

Possible candidates are sounded out by phone or letter. At one search firm, they are called "suspects" when their names first come up, "prospects" if they look good, and "candidates" when they hit the home stretch. The better ones are interviewed and thoroughly investigated.

Normally, the candidate doesn't know the name of the company that's thinking of hiring him until the search firm is ready to introduce him

as a finalist; sources are also kept in the dark. This anonymity for the hirer is the search firm's chief selling point. Companies can sound out hundreds of prospects without tipping off competitors, customers, or their own executives.

Another advantage of using a search firm is that both client and candidate are usually franker with the middleman than they would be with each other. John Handy recalls the baffling case of the young executive who firmly refused to take a presidency at twice the salary he was getting. Finally, the prospect confessed he was too poor to buy a new house if he moved and too proud to admit his plight to the would-be employer. The company, apprised of the facts, cheerfully arranged financing.

Other advantages of the outside search firm, say the companies that use them, are objectively, thorough coverage of the field, and saving of executive time. Some companies think fees are too high, but the searchers argue it's cheaper to use them than to build up a seldom-used internal staff.

The best clients of search firms are companies that have just been formed, have recently decentralized, are growing fast, are diversifying into new products or markets, or have neglected to prepare their own executives for advancement.

But established companies with elaborate management development programs occasionally turn to the executive search firm, too. Indeed, more and more companies may use this service to help them meet the rising demand for management talent in a boom economy. ♦

Field Sales Management—

Weak Link in the Selling Chain?

Condensed from Acme Reporter

WHETHER YOU HAVE good salesmen today, good customer relations tomorrow, or good sales ever may well depend on one important member of management: the field sales manager.

Emphasis formerly on the front-line salesman is shifting to his supervision. As one top manager put it, "Today's field sales manager is becoming more and more the company head in his local operation."

The role of field sales management is crucial. A number of studies have demonstrated that the biggest factor determining success or failure for new salesmen is the quality of supervision they receive.

Too many companies try to control and motivate their salesmen solely through a sales compensation plan. But in deciding which of the many types of sales compensation plans is best for its salesmen, the company must assess the degree of field management it already has or is prepared to institute. The more purposeful the supervision, for example, the less need there is to motivate salesmen via the more mechanical means of a sales compensation program. And if

the salesmen plan their own time and effort well, then a strong incentive plan may be more effective than an intensive supervisory setup.

In all cases, the two means of motivating and controlling—*compensation* and *supervision*—must be carefully balanced. Failure to combine them properly can be costly; it is just as bad to have too much of either or both as it is not to have enough.

What should the field manager's responsibilities be? Clearly, he has more to do when close supervision is called for—but this does not change the fact that his job consists, in varying proportions, of two principal elements: human relations activities and planning and decision-making activities.

It is this second, more analytical element which makes the manager's job so different from the salesman's.

The salesman who gets along with people already has a start on the human relations aspects of management. Yet even here there is a difference. A manager must be more impartial and impersonal, since he deals with a number of people

Acme Reporter (1960 Series—Number 1), The Association of Consulting Management Engineers, Inc.

simultaneously rather than one at a time. Further, he is more concerned with helping his men develop and grow than he is with getting signatures on dotted lines. When, in addition, he must make decisions for the good of the whole company rather than worry just about his own customers, and when he must plan for long-range goals instead of this week's sales, he must indeed shift his mental gears.

Hence, many companies have found that a good salesman does not necessarily become a good manager. But an effective field sales manager *should* also be a good salesman. There are two reasons: It is hard to understand what selling is without having experienced it; and because salesmen do feel this way, they are more likely to respect and have confidence in a manager who has had selling experience.

How do you select the field sales manager?

First, there must be enough potential managers in the sales force to draw from—but not too many, for the morale of a sales force can be ruined if several men become frustrated through a lack of advancement. A good rule of thumb, some companies have found, is to have two or three potential candidates for each foreseeable opening. Thus it's important, when selecting salesmen, to evaluate their future management potential as well as their present sales ability, and to select the proper mix on this basis.

Information gathered at the hiring stage can be useful later on when the management opening develops. And by that time, of course, you have the men's records to go on. On the

basis of these records, you can consider, in addition to the original candidates, one or two men who have developed unexpectedly well. Here are some questions you might ask about each candidate:

- Does he have a good (but not necessarily the best) sales record?
- Has he been useful to other salesmen or to the group as a whole?
- Are his interests in the company clear and direct?
- Has he planned his time and selected his prospects well?
- Has he been effective in ironing out trouble spots?
- Are his decisions well reasoned?
- Is he willing to change his opinions if the facts indicate he should?
- Is he honest and personally above reproach?

Selecting the man is only part of top management's job. If executives expect the best local supervision of the sales force, they must take some positive steps to get it. In training programs, new managers must be made aware of the dimensions of their new responsibilities, and given a clear picture of what the company expects from them.

Furthermore, the job has to be equipped with the necessary authority. Management should think twice, for instance, about the common practice of removing from the field manager the function of hiring the salesmen he will work with. Similarly, the field manager should have a voice regarding sudden transfers of his local top performers to jobs elsewhere.

Included in the field sales manager's general responsibilities are bolstering, training, and guiding his

men; planning allocation of territory and distribution of special effort; and making decisions in borderline and emergency cases or on matters involving company policy, like special price quotations or delivery arrangements.

Sometimes he also does some selling—handling particularly important or difficult accounts himself or teaming up with one of his salesmen for the occasion. This practice, however, can cause resentment on the part of salesmen if they feel they are losing credit for the sales in question. In addition, it can distract the field manager from his most important job: managing.

Sometimes, however, the economics of the situation require that the manager sell. In this case, it must be kept in mind that such an arrangement is not ideal, but a necessary compromise.

There are often districts or branches with two separate sales

forces, differentiated, perhaps, by product or company division. The question arises whether there should also be two different managers. The answer is yes if at all possible, even if it means some waste of management time. At some point, of course, the waste becomes too great to afford. But the decision should be based primarily on the fact that there is usually greater investment in the sales force than in its management. This investment will pay off under strong, direct leadership. And the sales manager who is split between two loyalties is less likely to be a strong leader.

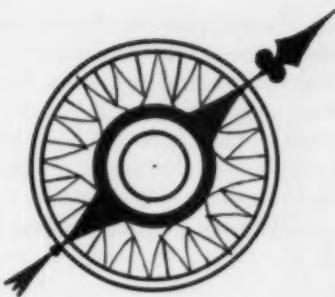
Finally, the field sales manager's place is with his salesmen. The most successful salesmen are the ones who plan, and it is the manager who can help his men do it effectively. That is but one reason why, in so many companies, the field sales manager is the most important link in the selling chain. ♦

The Growing Executive Job Market

IN PREPARATION for the expanding markets of this decade, many companies are now looking into their staff needs. A survey of 152 major corporations, reported in *Dun's Review and Modern Industry*, shows that management people (particularly sales executives) are being hired at a faster pace than before, and that many executive job openings will occur in the months ahead.

The survey indicates that sales and marketing will account for 30 per cent of the jobs to be filled. Almost as many—26 per cent—will be in manufacturing, and 24 per cent will be in engineering positions. Only 9 per cent of the executive jobs to be filled will be financial functions.

Most of these management jobs fall in the \$10,000 to \$20,000 range. About 15 per cent will be in the \$20,000 to \$40,000 range, and only 1.4 per cent of the jobs will pay more than \$40,000.



THE COMPANY POLICY MANUAL: GUIDE TO EFFICIENT MANAGEMENT

By Louis Cassels and Raymond L. Randall

Condensed from Nation's Business

YOU CAN IMPROVE management efficiency by putting your company's policies on paper.

That's the testimony of scores of firms that have achieved excellent results with carefully written policy and procedure manuals.

Management consultants Booz, Allen & Hamilton recently polled 337 firms to learn their current attitude on written policies. The survey showed that although many companies still do not put all their policies in writing, the tendency to do so is increasing. The extent of written coverage tends to decline with company size, but even among smaller companies in the survey, the report noted "an active effort to develop more formal policy patterns."

The experience of companies of all sizes points up nine sound reasons for spelling out policy in written form:

1. *Written policies promote deep delegation of authority.*

Real delegation is encouraged when an executive is reasonably assured

that his subordinates will act in a given situation as he would act himself. Clearly defined and well-communicated policies help to give him this assurance.

2. *Written policies promote management by exception.*

Specifying in advance how to handle recurring problems frees overworked senior executives from many repetitive, time-consuming decisions. Moreover, internal communication channels are cleared of a vast amount of correspondence about routine decisions. Thus, when an exceptional problem arises that really warrants a fresh management decision, the organization is geared to transmit it speedily to the top and back, and upper-echelon executives have time to give it the thoughtful consideration it needs.

3. *Written policies promote consistency.*

Varying personnel policies from one unit to another is extremely damaging to employee relations. Similarly, inconsistency in the treatment

Nation's Business (December, 1959), © 1959 by *Nation's Business*—the Chamber of Commerce of the United States.

of customers and suppliers, either between one branch of the company and another, or from one time to another, can be bad for business. The uniformity of administration that flows from formal, company-wide policies is the best insurance against these dangers.

4. Written policies promote continuity.

The accumulated wisdom that a senior executive carries in his head is lost when he leaves the company. But if past experience and judgment are distilled into policy and captured on paper, successors can avoid some of the pitfalls and blind alleys which have already been explored.

5. Written policies promote planning.

Some policies contain gaps, contradictions, or fuzziness that may be overlooked so long as no one has to explain the policy in detail. Drafting the policy manual helps to uncover the inadequacies.

Since the value of a policy manual depends on the extent to which it anticipates problems, the managers who compose it must think ahead. Thus, policy formulation is a stimulus to long-range planning.

6. Written policies promote teamwork.

A well-prepared policy manual enables lower-echelon managers and specialists to see the over-all picture as the chief executive sees it—the company's goals, the basic principles that underlie its specific policies. They can see how their particular responsibilities dovetail into a bigger plan.

7. Written policies promote understanding.

A simple fact often undergoes a remarkable transformation traveling along the company grapevine. Imagine what happens to a carefully calculated policy by the time it has been handed down through several echelons by word of mouth.

8. Written policies promote training.

A policy manual can be invaluable in orienting young or newly hired managers. If conscientiously studied, it can be as effective as months or years of coaching.

9. Written policies promote good human relations.

Attitude surveys show that people work better when they know what is expected of them. When the ground rules are right there in black and white, buck-passing in both directions is minimized. Neither superior nor subordinate can claim—as both often do when a verbal instruction boomerangs—that the wishes of management were misunderstood.

So much for the dividends. What are the arguments against putting your company's policies in writing? There are four principal objections:

The first is that certain policies are best kept confidential. But confidential policies comprise a relatively small proportion of the total policy picture. They can be omitted from the regular manual and communicated either verbally or in a written supplement of carefully restricted circulation.

There is one important warning: Never include in your official manual any statement of policy which is essentially contradicted by an actual policy that is kept in confidence. This kind of duplicity is invariably detected

sooner or later by subordinates, who will then regard the entire policy manual as undependable. A policy manual can be silent even on an important subject without destroying confidence in its over-all authority. But it cannot be hypocritical.

A second objection, often raised by smaller organizations, is that policy manuals cost too much to produce. However, careful cost-accounting studies show that it costs the average organization at least \$1 to produce a letter or memorandum. Multiply that unit cost by the vast number of individual questions and answers that must flow through the correspondence system when there are no clear-cut policies for handling routine problems, and you quickly exceed the cost of a simple manual.

A good policy manual doesn't need to be fancy. The most efficient type is an inexpensive loose-leaf notebook. Policy statements, classified and indexed by subject, can be printed or mimeographed (depending on the number of copies required) on separate pages so that revisions can be made easily by substituting pages.

A third objection is that written policies tend to remain on the books long after they are obsolete. This is a real pitfall, but it can be avoided. If your manual is going to be an effective management tool, and if it is to have the unquestioning respect that is essential to its role, it must be frequently reviewed and revised.

The fourth argument is that written policies may reduce management flexibility and become a strait jacket for the organization. This criticism can validly be directed only at poorly conceived manuals that attempt to spell out every rule in great detail. A good manual can actually encourage flexibility by carefully delineating the areas where the company's mind is made up and those in which it welcomes the exercise of managerial discretion.

If it's done right, then, a company policy manual can be a genuine asset for management. In the words of the Booz, Allen & Hamilton report, written policies "free top management so that more creative consideration can be given to the programs of today and the new programs of tomorrow." ♦

A UNIQUE PLAN FOR CORPORATE CHRISTMAS GIVING helps provide needed financial assistance to the nation's accredited medical colleges. Funds previously utilized by the Carling Brewing Company for presents for its wholesalers are now used to provide scholarships for student nurses. The scholarships are administered by the National Fund for Medical Education, a nonprofit organization that awards approximately \$3 million in grants annually to medical schools. Carling President Ian R. Dowie feels that "strong medical schools mean healthier, longer, and more productive lives for all of us, as well as a better chance for national survival in this period of world tension."

**A step-by-step guide to
the problems of preparing
for your company's bar-
gaining sessions . . .**

WHEN YOU SIT DOWN WITH THE UNION . . .

By Willard A. Lewis

*Condensed from
Super Market Merchandising*

A COMPANY'S year-round industrial vigor may well depend on its alertness during the crucial weeks of collective bargaining. Management can do its part to contribute to constructive and realistic negotiations by following sound collective bargaining principles.

Super Market Merchandising (January, 1960), © 1960 by Super Market Publishing Co., Inc.

Management's first meeting with the union should be an intelligent listening session. Don't ignore a seemingly frivolous item in the union's demands; it may disguise some serious underlying issue. Try to determine which demands come from the International and which from the Local. Give priority to those from the Local, since they may reflect mishandling—or what your employees *feel* is mishandling—of your personnel relations.

Next, try to separate the real issues from the diversionary ones. The real issues are those which could provoke a serious labor dispute; the diversionary ones serve to let off steam or to allow face-saving.

Make sure that the list of demands represents all the concessions the union wants. And, at the outset, each side should disclose just who has the authority to negotiate and to make final commitments.

At some point before the bargaining give-and-take begins, you and the union might want to discuss what happens if you cannot conclude a contract within the allowed time limit. An impasse leading to a strike—the ultimate power behind a union's demands—is possible, and the best time to talk about it is before both sides get emotionally caught up in an actual walk-out.

This "listening session" may go on for a few hours or a few days. You should then be ready to discuss, at the following meeting, each demand plus your counter-demands, major alternatives, logical arguments, and supporting data. One current trend is to submit to the union a set of forceful and real demands based on

management's need for contract changes in specific areas.

Knowledge of the operations of the union—the Local as well as National or International with which it is affiliated—may help management during collective bargaining. For instance, although the union committee may be empowered to call a strike, it must usually—but not always—submit any agreed-upon contract to the Local membership for ratification. This requirement or its absence may be critical to the outcome of the negotiations. In addition, awareness of the problems of the union's officers—problems which may range from survival in office to the impact of rival unions, industry-wide pressures, and national legislation—will aid management in presenting its views more palatably.

To prepare for the bargaining itself, find out from your managers how current clauses have worked, or how proposed clauses *will* work, in their areas of operations. Analyze past grievances and arbitration awards to determine any weaknesses in your personnel relations or in the application of current contract provisions. Put all of the accumulated "past practices" into writing, for reference during negotiations.

Determine how proposed clauses will affect merchandising, sales, purchasing, transportation, warehousing, and services. Let your controller translate the union demands and your alternatives into direct and indirect labor and unit costs, including the indirect costs of time spent in grievance handling and negotiating sessions.

As part of your normal business

routine, you will have been developing economic, wage, and contract data with respect to your competitors, geographic area, field of business, and related service industries and businesses. Compile all of it into an accurate, comprehensive "fact book," for further reference during the bargaining conferences.

Who shall conduct bargaining?

A top executive or a line operating head often negotiates for management, with staff officials such as the personnel officer, the attorney, or the labor relations consultant present for advice. It's wise, though, for the president to keep himself in reserve, so that he can be called in if an impasse occurs.

As the area of labor relations becomes increasingly specialized, it is harder for the president or other high-ranking line executives to negotiate expertly. Many companies use their personnel manager, labor relations attorney, or consultant as spokesman. These men are bound to be steeped in the knowledge of labor law and union affairs.

The ideal formula, however, is to develop a team approach to bargaining with the union, so that you achieve a fair balance of line and staff representatives. In this case, the company people who will have to administer the agreement should be present and participating.

Once negotiations are in progress, keep a written record of each session and of the tentative or final conclusions reached. In bargaining, never make an offer that you have to withdraw, and keep in mind that privileges and benefits already granted are difficult to retract.

Avoid commitments in new areas until you have analyzed them thoroughly. Establish negotiating ranges for the wage issues and keep them secret. Analyze any package deal carefully—its separate parts, and every combination of those parts.

Have only one man do the talking, in general, and respect the intelligence of the other side. Avoid taking any public position before discussions commence, and recognize that negotiating sessions may, in fact, lead you to change your mind. If you have a long-range management program of your own that you want to implement with proposals and counter-demands, be prepared for gradual change.

Every clause that goes into the final contract should be examined from four points of view:

1. Its effect on management.
2. Its effect on all your employees, including nonunion people and union members in other collective bargaining units.
3. Its effect on the union's leadership and on the union as agent of your employees.

4. Its effect on the union's own interests within the trade and within the International, particularly in the area of jurisdictional disputes.

Finally, in examining the contract, ask yourself these three questions:

1. Have you explored each clause's relationship to other clauses, in order to avoid contradiction, inconsistency, or overlapping?

2. Does the clause say, exactly and clearly, what both parties want it to say?

3. Can you reasonably anticipate how an arbitrator will interpret the clause? And can the minutes of the negotiations support this interpretation?

A company's labor relations policy is a vital portion of its over-all corporate objectives. If the new contract furthers these objectives, then management is fulfilling one of its major responsibilities. ♦

ED. NOTE: For an analysis of the collective bargaining outlook for 1960, see the feature article that begins on page 9 of this issue.

Weak Spots in Campus Recruiting

ALTHOUGH most corporate campus recruiters are doing a good job, there is plenty of room for improvement, according to a recent survey of college placement officers conducted by the American Management Association. And the companies themselves realize that the situation is not perfect, as another AMA survey of company personnel executives indicates. Both surveys were made as part of a research report on employment to be published by AMA later this year.

Corporate recruiters—according to some of the suggestions made by college placement officers—should offer candidates more specific information about jobs and "glamorize" less; devote more time to the candidate's interests and qualifications and less time to company information that could be supplied in writing; and pay more attention to students who may not be carbon copies of last year's successful hires.

ALSO RECOMMENDED

BRIEF SUMMARIES

of other timely articles

GENERAL

STOCK OWNERSHIP FOR EMPLOYEES. By John C. Agnew. *Business Horizons* (School of Business, Indiana University, Bloomington, Indiana), Fall, 1959. \$2.00. From 1947 to 1956, more than 150 companies listed on the New York Stock Exchange adopted stock-purchase plans for their employees, the author notes, as he offers an overview of the development of such stock plans, identifies their three general types, and discusses future trends in the field. This article also provides a detailed case study and evaluation of one company's experience with employee stock plans, including such points as employee participation and withdrawal; duration of the plan; payment of dividends; and benefits from the points of view of employees and employers.

COLLEGE RELATIONS IN AMERICAN BUSINESS. *Journal of College Placement* (35 East Elizabeth Street, Bethlehem, Pa.), December, 1959. \$1.50. This 23-page article—which reports the results of a recent survey of the college relations practices of 275 industrial organizations and businesses, with additional data from 468 placement officers and 180 professors—gives a picture of college relations as it has evolved during the past 57 years and a glimpse of what can be expected in the future. Numerous tables express the respondents' practices in such areas as the initial contact between school and business (usually made by company rep-

resentatives); satisfaction with the relationship (only four placement officers and six professors expressed dissatisfaction); and developing formal programs in college relations (the trend is toward centralizing activities under one coordinator).

A RATIONAL METHOD OF PLANT LAYOUT. (Two parts.) By Donald Thompson. *Chemical Engineering* (330 West 42 Street, New York 36, N.Y.), November 30 and December 28, 1959. 75 cents each. These articles on plant layout discuss (1) over-all procedure and philosophy and (2) practical methods of process plant layout. Beginning with preliminary process design, the first section presents a step-by-step procedure for evolving a final layout, which is a framework on which to build the actual construction drawings and details; the follow-up article gives details on many factors that must be taken into account, such as establishing floor heights to accommodate piping; setting up standards for proportioning stairs; and, most important, making provision for expansion.

RADIOISOTOPES IN INDUSTRY (Studies in Business Policy No. 93). National Industrial Conference Board (460 Park Avenue, New York 22, N.Y.). \$5.00. At the request of the Atomic Energy Commission, a nationwide industrial census was undertaken to determine specifically how radioisotopes are being

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used in industry and the particular advantages of each use. This account of the results of the census provides an industry-by-industry report of the various methods for using radioisotopes, gives details of the experiences of firms that have benefited from this nuclear tool, and includes a nontechnical explanation of what radioisotopes are and the principal methods of using them.

HOW INDUSTRIAL REALTORS CAN HELP YOU. *Industrial Development* (190 Market Place, Baltimore 2, Md.), January, 1960. 50 cents. The company seeking a site for heavy industry

or a location for a distribution unit can hire industrial realtors to study and report on appraisals, insurance, financing, construction services, the nature of local school systems, and the quality of housing, in addition to such intangibles as the attitude of citizens toward industry. This report includes a comprehensive guide to standard services provided by the Society of Industrial Realtors and to special S.I.R. services (such as making spot studies in areas suffering from severe unemployment problems), plus a listing of the organization's membership in every state in the United States and in Canada.

INDUSTRIAL RELATIONS

HEART DISEASE AND EMPLOYMENT. By Leonard J. Goldwater, M.D., Lewis H. Bronstein, M.D., and others. Occupational Health Institute (28 East Jackson Blvd., Chicago 4, Ill.). Gratis. What are the pros and cons of employing people who have had cardiac episodes? How important is heart disease to industry? Recognizing the significance of these questions to top management, personnel managers, and industrial safety directors, the Occupational Health Institute has reprinted a group of papers which approach the subject authoritatively. The papers include "The Cardiac in Industry"; "Fifteen Years of Cardiac Work Classification"; "The Magnitude of the Heart Disease Problem"; "Severity of Myocardial Infarction in Garment Workers"; and an editorial on heart disease and employment, reprinted from the *Journal of Occupational Medicine*.

HEALTH CARE OF THE AGED: WHO PAYS THE BILL? By Gaston V. Rimplinger. *Harvard Business Review* (Soldiers Field, Boston 63, Mass.), January-February, 1960. Reprints \$1.00. Do incomes from health insurance policies cover rising health costs for the aged? Should health benefit programs for retired employees be made com-

pulsory as part of the Social Security system? Will industry have to increase its contributions to such programs? How can the employee best be encouraged to pay during his peak earning years for the costlier medical benefits he will need as he grows older? Examining these increasingly important questions and their proposed solutions, the author offers guides to help the executive decide the most efficient way to support employee health care.

MEDICAL SERVICE IN SMALL PLANTS. By R. B. O'Connor, M.D. *Industrial Medicine and Surgery* (P.O. Box 44-306, Miami 44, Fla.), December, 1959. \$1.25. Furnishing the right kind and the right amount of industrial medical services for the small plant can be a crucial problem where a full-time medical staff is not needed, says the author, as he discusses ways of hiring qualified medical personnel to serve the plant employing between 100 and 500 people. Among solutions currently used by such plants are hiring one full-time industrial nurse; sharing the services of a doctor or nurse with other small plants in the community; making use of the Visiting Nurse Association; and contracting with a local group practice clinic to provide in-plant medical service.

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PRODUCTION

SIMPLE ESTIMATES FOR COMPLEX WORK LOADS. By Richard H. Hillsley and Albert L. Harbury. *Harvard Business Review* (Soldiers Field, Boston 63, Mass.), January-February, 1960. Reprints \$1.00. Reliable estimates of future work loads and their costs can help management reach important decisions—like whether or not to bid on a fixed-price contract or whether to buy or make an item of manufacture—observe the authors, as they describe in detail how to combine simple statistical techniques with management judgment to gain the most accurate picture of the work load and its costs. Among the applications of such estimates are forecasting space, manpower, and capital requirements; determining which of several possible contracts will yield the greatest return; and objectively measuring the cost of transferring personnel.

1960 AUDIT GUIDE FOR MANUFACTURING. *Factory* (330 West 42 Street, New York 36, N.Y.), December, 1959. \$1.00. Based on the experience of 162 plants, this article presents the results of a survey of current plant practices, covering cost and quality control, communications, product and inventory control, materials handling, and manufacturing engineering—data that

can be used as a basis for making a systematic audit of an individual plant. The results indicate that most plants use manual systems for production and inventory control, but mechanization is growing; handling costs average about half the usually estimated of 20 to 25 per cent; statistical quality control is now used in more than half the plants surveyed; and there is an increasing use of day-to-day cost reports to supplement the usual practice of monthly reporting.

METALWORKING FACTS AND FIGURES. *Steel* (Penton Building, Cleveland 13, Ohio), January 4, 1960. Reprints gratis. This special 48-page reference section of data on metalworking industries covers world production, U.S. exports and imports, distribution, shipments, containers and closures, prices, machine tools, nonferrous metals, machinery and equipment, appliances, transportation, electronics, farm equipment, construction, earnings, and labor. Providing an index of subjects ranging from Air Conditioning Equipment to Zinc Slab, this section on the world's largest industry includes numerous tables with figures from past years plus estimated 1959 figures, based on data from the Office of Business Economics and the U.S. Department of Commerce.

MARKETING

1960 MARKETING AND PRODUCTS. *Industrial Distribution* (330 West 42 Street, New York 36, N.Y.), Mid-December, 1959. \$1.00. In addition to a catalogue of over 125 new products, each complete with photograph and description of function, this special issue presents a listing of over 3,600 product classifications, from Abrasive Bands and Arbors to Zinc Sheets and Bars, together with names and locations of the manufacturers of the products. Also included is an index of

trade names employed by manufacturers of general industrial equipment, tools, and supplies, with the names of the manufacturers and the products to which they refer. A separate index lists the manufacturers alphabetically and gives their addresses.

INNOVATIONS IN MARKETING MANAGEMENT. *Business Horizons* (School of Business, Indiana University, Bloomington, Indiana), Fall, 1959. \$2.00. The marketing function is becoming

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more and more a central part of the business philosophy, state the editors, as they present three allied articles on management and the marketing concept: (1) an evaluation of planning in marketing management, by its essential elements and its purpose; (2) a case study of nonprice competition in the agricultural chemical industry; and (3) an investigation of the sales forecast as an integrating tool for the whole firm.

HOW TO SELL TO THE BIG, GROWING SCHOOL MARKET. *Management Methods* (22 West Putnam Avenue, Greenwich, Conn.), December, 1959. 50 cents. Public schools are currently

spending about \$15 billion annually at the local level—a profitable market if sales methods are shaped to its unique characteristics, reports this article, which presents facts from new research on the buying practices and structure of the school market. The article reveals that every one of 44,000 school districts (of which 12,000 contain approximately 94 per cent of all children attending public schools) is an autonomous government with the power to spend funds at its own discretion, and that 21,152 rural school districts offer a poor economic market if taken singly, but should not be overlooked when they buy in combination.

FINANCE

FINANCE FOR THE NONFINANCIAL. By Gordon Donaldson. *Harvard Business Review* (Soldiers Field, Boston 63, Mass.) January-February, 1960. Reprints \$1.00. The field of finance has developed an increasingly complex set of specialized techniques and terminology; for this reason, says the author, too many executives have neglected to acquire a basic understanding of the important financial aspects of management. To assist the nonfinancial executive begin a practical study of business finance, the author recommends and discusses six books—their subject matter, style, and value to the businessman in specific management situations—and describes additional helpful reference material.

TAX ASPECTS OF DOING BUSINESS ABROAD. By Fred W. Peel. *Taxes* (4025 West Peterson Avenue, Chicago 46, Ill.), December, 1959. 75 cents. Concentrating on corporate income in this analysis of the tax aspects of doing business abroad, the author discusses objectives and pitfalls of tax planning, tax-free exchanges, source of income, foreign tax credit, and income tax treaties with various countries. Until further legislation in 1960, the author suggests that firms planning businesses

abroad consider the following possibilities: (1) deferral of U.S. tax may be permitted with respect to a special category of domestic subsidiaries; (2) an over-all limitation on the foreign tax credit may be available without utilizing a foreign holding company subsidiary; (3) the present tax benefits through claiming foreign tax credit with respect to dividends of foreign subsidiaries may be legislated away.

DECENTRALIZING PLANT ACCOUNTING. By Peter Berghian. *Cost and Management* (31 Walnut Street South, Hamilton, Ontario, Canada), December, 1959. 50 cents. Outlining the relative advantages of decentralizing the accounting functions of a multidepartment plant covering a large area, the author describes such a program's objectives, how one plan was actually put into operation, and many of the results: better production reporting and inventory control recording; more uniform preparation of product yield and production cost data; improved product cost allocation and labor cost distribution; elimination of duplicate record keeping in both the accounting and operating departments; and the removal of time-consuming accounting responsibilities from the operating managers.

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The Company Employment Image

(Continued from page 8)

does no good to bewail the fact that images often make no sense: they don't have to. Logical or not, images have been and will be around for a long time.

It is quite normal for people to personify companies by projecting some kind of identity onto them. Image-making is simply a form of mental shorthand that cuts a swarm of relatively diverse individuals—for that is what a company *really* is—down to a size the human mind can manage. It is easier to ignore dissimilarities among people if a few similarities happen to stick out. This kind of thinking has another "merit": it helps to satisfy a basic human desire to pin some kind of definite label on situations that are too ambiguous to classify. By brushing aside inconvenient details, we are free to make the kind of sweeping generalizations that make the world seem like a simpler place than it really is. Even though this tendency may be illogical, it is too universal to be treated lightly.

For example, how often do we refer casually to "the government" as if it were a single entity with a super-personality of its own that transcended the individual traits of everyone in it? The same kind of lumping of individuals under one convenient label occurs with regard to all organizations.

HOW IMPRESSIONS BUILD UP

Employment images are born as a result of this need, or habit, of classifying. Usually the classification is made in terms of the same qualities that happen to be important to the individual. Someone who is interested in prestige, for example, will tend to classify companies as elite or as undistinguished; and someone who is interested in security will tend to think of them as "generous" or aloof.

But these classifications are *not* made arbitrarily. People seek some kind of evidence before tucking a company into one mental cubbyhole or another. Unfortunately, people are often impatient to have an image crystallize, and therefore don't too much care whether the evidence they have is flimsy or substantial. Most of the evidence from which employment images are constructed comes from four general sources:

- *Contacts with employees.* These are not necessarily first-hand contacts, but may be several times removed. And what an employee says about his company is only a part of the total picture he conveys: the personal impression that he makes on others will also be taken as an indication of the general character of the company. Willy-nilly, every employee is a potential symbol to a potential employable of what the company as a whole is like.

Sometimes one individual, usually a top executive, becomes a symbol of the entire company in the public mind. This person's real or imagined traits can have a marked effect on the company's general employment image. Similarly, the professional reputation of key technical specialists can, for better or worse, color the reputation of the entire company as far as other specialists are concerned. Even one employee with an outstanding reputation can be the best advertisement his company could have among others in his specialty field. The converse is also true.

- *Reputation of products or services.* The reputation of a company's products tends to rub off onto the reputations of its employees. Many employables realize this, and if they are at all fastidious about their own good names they will think twice before associating themselves with a firm whose products are not generally considered to be up to snuff. Conversely, many people seem to be motivated by the desire to bask in the reflected glory of a well-accepted product.

This is not a universally valid rule, however. Many people are indifferent to the product reputation of a prospective employer. In fact, quite a few people are indifferent to employment images in general. But this does not tend to be true of people who have a strong emotional commitment to their work. It is particularly rare among the managerial and specialist groups we have been discussing—and, when it does occur, it often signals a relatively short-term employment with a low degree of company loyalty.

In a complex and dimly understood way, people tend to gravitate toward companies whose products and general reputations are congruent with their own innermost estimates of themselves. This is one reason why some companies develop and keep a reputation for having an unbeatable team, and why others never manage to shake off the inertia and complacency that goes with an "eight-ball" reputation.

- *Rumor, gossip, and "incidents."* Many companies have unknowingly spawned a rich popular folklore about themselves. This is perpetuated in the minds of the general public by the casual remarks of the uninformed, by their interpretations of events within the company that seem to support their ideas, and most of all by the failure of many companies actively to counter the rumors that circulate about them.

Sometimes the rumors are so strikingly out of step with the truth about a company that it seems unnecessary—even undignified—to take any notice of them. This, unfortunately, allows the rumor to remain unchallenged in the minds of people who have no other way of judging the company—and this group is very likely to include potential employables in crucial specialty fields.

It only takes one “confirming” incident to fix an impression in an outsider’s mind, even in the face of evidence that it was an exception to the rule. This is simply because most people don’t bother looking for evidence that goes contrary to ideas with which they already feel comfortable. In this way, events which may have occurred years ago (if they occurred at all), and which may represent nothing more than an unintentional lapse from an otherwise consistent policy, can become the basic features of a false employment image.

- *Advertising and public relations.* Whether intentionally or otherwise, these activities always affect a company’s employment image. No matter what audience a particular program is intended to reach—customers, prospects, or the public at large—it will also reach a pool of potential employables. For they are, in a sense, always looking over the shoulder of the fellow to whom an advertising message is addressed; and if their interest in other employment is keen enough, they will probably draw conclusions from the ad about the desirability of the company as an employer.

All advertising conveys some kind of image of the sponsoring company. It may therefore seem a little incongruous to credit advertising with a relatively small degree of influence in the development of employment images. However, non-deliberate media for communicating an image (such as employee contacts and hearsay) usually carry more weight than do deliberate efforts at image-building.

There are several reasons for this: first of all, as many advertisers

have learned in this era of motivation research, any obvious "plug" for a company arouses an almost automatic resistance on the part of many people. The advertising profession has its own image to contend with, and in the minds of many people the very term "Madison Avenue" is equated with deception. Unfortunately, this image is sometimes reinforced by a heavy-handed or implausible attempt to make a company seem too compassionate, too sterling, or too idealistic to be true.

Advertising that is designed to catch the eye of employables is often used only when certain kinds of personnel happen to be in short supply. Such sporadic advertising efforts often project a fogtier image than is built up by a planned and sustained program; and a foggy image is more likely to be twisted to preconceived notions than is a distinct image. Even a sharply defined image may be unconvincing if it is inconsistent with strongly held impressions from other sources.

PLAIN AND FANCY IMAGE-BUILDING

No company whose future depends upon the caliber of the people it attracts to key posts can afford to leave its employment image entirely to chance. While images are too capricious to be neatly "engineered," it is possible to make them more accurate, and more appealing to the kinds of people a company wants to attract. Obviously, it should be part of over-all personnel strategy to keep the employment image as positive as possible.

The first step, of course, is to determine what the *existing* image is like. There is no standard way of doing this. On the one hand, there are some very sophisticated techniques which, in the hands of a qualified social scientist, can yield some penetrating insights into what the image is like—and perhaps more importantly, how it got that way. On the other hand, there are some very straightforward methods which require no special background, but only an objective attitude and a willingness to listen. As time goes on we shall probably learn a lot more about images and how to measure them than we know today; but at the moment expediency usually dictates the method of choice.

The natural habitat of an image is in other people's heads, and therefore *all* image-measuring methods are built around surveys

involving many individuals. As a rule it is wise to determine what a company's image is like among both employables and the people who are likely to influence their ideas. Examples of behind-the-scenes opinion-shapers are college faculty members and placement officers, reporters and editors of trade journals in each specialty field, present employees and their families (especially wives), and former employees. Students employed in summer training programs, or who are brought to plant sites for pre-employment visits, often have a pronounced influence on the images other students get of the company.

SURVEY TECHNIQUES

Of all the various survey techniques, perhaps the simplest is to talk to people individually, encouraging them to speak freely about all their impressions about a company and how they got them, without challenging their ideas or pinning them down in any way. A patient listener who collects impressions from enough people can learn a lot about the company's image in the outsider's eyes. Of course, the value of this method depends completely on the skill, sensitivity, and judgment of the interviewer.

Other techniques call for professionals: questionnaires can offer considerable objectivity, though often at the cost of depth and detail. Depth interviews, when properly carried out, probe the basic attitudes of an individual and attempt to catch the interplay between his images and his emotions. Semi-projective tests can usually be adapted to image research with a fair degree of sensitivity. A new technique called the "semantic differential" permits a more or less quantitative analysis of the terminology that people use in describing their images of a company.

With so many groups that could be surveyed, and so many techniques to survey them with, the process of image measuring could easily go on *ad infinitum*. A judiciously planned survey, however, can keep this phase of the process in its proper perspective. This means sampling only those groups which can be most profitably studied under existing circumstances, and using only those techniques which can be most fruitfully applied to those groups by available specialists.

The survey results should indicate not only what the company's

employment image is like, but also what its main sources are, and its probable effects on the pool of employables that make themselves available to the company. If there are any psychological barriers that have kept desirable individuals from responding to the company's recruiting efforts, these should be revealed in sufficient detail to suggest appropriate action.

CHANGING OR UPDATING AN IMAGE

Images can be changed—not radically or suddenly, but through a gradual process of replacing the evidence on which they have been based with more accurate indicators of the company's character. This means, of course, that the company's management must be of one mind about the image it wants to get across. Some of today's outstanding companies owe their success, in large measure, to carefully cultivated employment images that have consistently attracted to them the cream of available brainpower.

There are no hard-and-fast rules for cultivating an employment image, but here are some basic techniques that are often useful:

- Encourage outstanding managers and specialists to represent the company at public gatherings of their colleagues, or before students in their professional fields. Let your company be symbolized by the kind of men you wish to attract.
- Highlight the achievements of outstanding employees in the local, trade, and alumni press. By boosting their individual prestige, you'll be noted as a company that *recognizes* the contributions of its best men.
- Publicize the projects the company is engaged in. (Of course, this must be consistent with security regulations when these apply.) It's important for the job candidate to feel that a potential employer is aware of the challenges in his field and is just as eager to explore them as he is.
- Encourage personal contacts between your outstanding men and the opinion-shapers in their fields. Invite faculty members, editors, etc., to visit the company and to study it, if they like, from their own professional standpoint.
- Gear part of your advertising toward the kind of questions that wives may have about your company as a potential employer of their husbands. Some common areas of worry for the

distaff side: frequency of relocation, school and cultural facilities in cities where the company has plants, long or irregular hours, vacation policies.

- Most important of all: Where the image is found to contain negative elements that have any foundation whatever in fact, *correct the situation and publicize this*. A demonstrated interest in corporate self-improvement is a powerful antidote for even the most adverse kinds of rumors.

Employment images are not new. What is new is industry's growing recognition of their importance—and this is basically a reflection of the advanced state of technical and educational specialization we are now entering. From all indications, the employment image will be an increasingly weighty consideration in corporate planning for many years to come. ♦



Computer Installation

(Continued from page 28)

that the equipment will become completely obsolete, it is interesting to note that one airline has expanded this application to accommodate the weather forecast for each flight (in addition to the simple balance of seats available on any flight leg). This necessitated the installation of a completely new memory drum and computer system.

Another case in point is the ERMA project for the Bank of America. A special-purpose machine called ERMA (Electronic Recording Machine Accounting) was designed to handle the deposit accounting function for the bank. The manufacturer who subsequently was contracted to deliver a number of ERMA's decided to revise the nature of ERMA so that it then became a general-purpose, rather than a special-purpose, machine. One reason for this was to give the device a much wider range of applicability. Even in deposit accounting itself, bank requirements vary sufficiently so that a rigidly designed special-purpose machine to meet the Bank of America's requirements would probably not meet the needs for many banks throughout the country. The obsolescence risk of the device was thus reduced by changing it from a special-purpose device to a general-purpose one.

2. TECHNOLOGICAL OBSOLESCENCE

What about technological obsolescence? As noted previously, most devices are technologically obsolete at the time they are manufactured, because of the time lag between research and production. This, however, is almost an academic question to the business manager. Consider, for example, the automobile industry. Cars which are five years old are not useless functionally or "obsolete" in any sense that is significant to business management, unless the devices are so inefficient that their use becomes economically unattractive.

The important thing is not technological obsolescence, then, but the economic obsolescence which might result from technical advances. This occurs when a new device is so significantly more efficient that continued use of the old device becomes *uneconomic*.

Nonrecurring costs that would be necessary in changing over to the new device must, of course, be considered. Thus the new device must be much more efficient in order to justify the additional conversion cost.

Let us examine this probability in light of the present state of computer development. In the first ten years of use of large-scale computers in commercial applications, the trend has been to a four-year cycle between generations of equipment. Already predictions have been made that the next major technological development in computers will come in the mid-'60s.

Most new developments in the computer field have been in the area of increased speed at "slightly" more cost. However, some machines have appeared recently which are both faster and less expensive. Several examples can be cited to show that these new devices cost about the same or less than earlier equipment that had lower input-output performance.

Thus we have seen some very significant advances in terms of improved performance at approximately the same dollar cost, though very little has been accomplished in obtaining the same performance at significantly lower cost. For instance, there doesn't seem to be on the horizon a modest performance tape machine which would rent for under \$2,000 a month. Why is this? For one thing, a logical capability and component complement required to do a modest-sized job is difficult to obtain at this price. All the major machine manufacturers are actively working on it because the market potential for a machine that would rent for less than \$2,000 a month is tremendous. Another indication of a trend toward lower-cost machines is the recent appearance of equipment which makes it possible for a business to install a very modest, but efficient, card system for under \$300 a month. Of course, the capacity of such a system is naturally limited, but it opens this field to much smaller-sized business.

The trend to date has been to improve components in terms of speed and capacity rather than to develop a *radically* different logical design. Developments have been more evolutionary than revolutionary. All electronic data processing systems utilize the same basic logical structure—input, output, storage, arithmetic and logical unit, and the control unit. It is true that more recent

equipment makes use of a greater simultaneity of operations. This is seen in the number of devices in which several things go on at once—reading, writing, computing. This concept is extended even further in a French machine in which there are different levels of logical operations.

"TRUE" TECHNOLOGICAL OBSOLESCENCE

"True" technological obsolescence probably occurs only with a *major* technical breakthrough rather than with gradual improvements. Some restricted technological breakthroughs may be occurring in applications of input-output areas. In source document reading, for example, magnetic ink character reading is utilized to implement common check collections for our commercial banks. In the area of nonimpact printing, a number of nonimpact type printers in the development laboratories or already developed show great promise. However, these specialized components are separable and are compatible units within the total system. They usually do not make the rest of the system obsolete. It is important to recognize that systems are being designed today to incorporate new devices as they become available. (This is a key consideration in renting versus buying.)

Probably the first really major advance in terms of "true" technological obsolescence will occur when an internal memory can be made sufficiently large, compact, and inexpensive to store main files, to provide transaction posting, and to provide random access to this information for inquiry reference.

Today most applications must pass in sequence all the records in the file in order to post an infrequently encountered record. The appearance of a random access device *can* profoundly affect the design and economics of business data processing systems. However, a device as practical and operative as this seems to be almost ten years away, since it requires a technical breakthrough in research, plus development and engineering time.

3. ECONOMIC OBSOLESCENCE

So much for technological obsolescence. What about the most important type of obsolescence to management—*economic* obsolescence? In discussing economic obsolescence, we must consider

the total period in a projected installation, beginning from the present. We cannot look to some time in the future when a more advanced set of equipment may be installed and ignore the interim. We must consider the interim savings which may occur from the installation of a system today, even though that system may be displaced some time in the future by a more advanced and efficient set of equipment.

COSTS OF CONVERSION

These interim savings may justify a double conversion—particularly when we remember that the second conversion may be much less expensive, as explained previously. The first conversion involves a great number of manual and clerical operations. It involves gathering the various information that will go into the magnetic tape file from the existing files (which may be maintained in many different departments), editing this information, tracking down any differences in the information in the files, key punching, verifying, and finally converting to magnetic tape. On the other hand, the second conversion will probably involve reading a magnetic tape, editing on a computer, and going directly to another magnetic tape. If the second, more advanced installation is obtained from the same manufacturer who provided the original installation, the probability is that magnetic tape reels utilized on the first machine will be compatible with the advanced machine. Every attempt is being made to provide this compatibility in the new advances coming from a manufacturer today, and we can look forward to an increased appreciation of this compatibility requirement in the future.

If another manufacturer's equipment is involved, at worst it would involve the utilization of a magnetic-tape-to-magnetic-tape converter. Such devices are now being manufactured by a number of electronic firms and are not tremendously expensive.

Thus the important element of conversion cost, incident to the parallel operation of the original system with the new system, should be greatly reduced, since the files can be converted rapidly. The time period is determined primarily by how long it takes to debug a new system rather than how long it takes to convert physically to the new system. The long periods of a year or two years required to convert to many of our data-processing installations

today are necessitated by the tremendous amount of work involved in physically converting the form of the present files to the form of the magnetic tape files. There is a peak physical conversion rate which it is uneconomical or operationally chaotic to exceed.

TIMING AND PAYOUT

Of course, economic obsolescence will be most important for management to consider in the case of a marginal proposition in which the interim savings will not be large. In such a situation, there is a much greater probability that economic obsolescence will develop within the payout period of the proposed installation. These points can probably best be illustrated by a few examples.

The accompanying table shows, in condensed form, the ten-year economic history for three approaches to the installation of a computer system.

In the first system we start to realize an operating savings in the

Accumulative Cost or Savings in Three Installations (000 omitted)

	LIGHT FACE = COST	BOLD FACE = SAVINGS	
Year	System 1	System 2	Systems 1 & 2
1	200		200
2	550		550
3	1,200		1,200
4	800	200	1,000
5	300	550	700
6	300	1,200	—
7	1,000	300	900
8	1,800	800	2,000
9	2,700	2,150	3,350
10	3,700	3,550	4,750

fourth year, and we're out of the woods by the sixth. The total, at the end of ten years, is \$3,700,000.

If the installation is delayed until a new machine appears (shown here as system number two), the position in the tenth year is not quite so favorable.

However, if we start with the first system and then convert to the second machine when it becomes available, we achieve the best payoff, as shown in the last column.

THE RISKS OF OBSOLESCENCE

What can reasonably be concluded about the obsolescence of EDP equipment?

The obsolescence factor underscores the need for determining the system requirements *before* selecting equipment. These system requirements should be incorporated into a generalized system design specifying, in terms of automatic operations, what is required. Only then can equipment be evaluated in the light of these requirements to determine the best equipment for the application. Specifying these system requirements, incidentally, often entails policy decisions, since the best way of performing a job on data processing equipment may be significantly different from the way it is currently being performed. This does not always mean that we must compromise with electronic data processing. Actually, it may be possible to perform the job with electronic equipment in a way management would prefer, whereas it would never have been practical with manual or punched card systems.

There are two important advantages in designing the system first and then selecting the equipment. First, the system will determine the equipment—and not vice versa. The all too prevalent practice of selecting equipment and then distorting the system to fit that equipment will be avoided. Second, this approach allows management to get the latest and most advanced equipment because it delays the selection of the equipment till the last step.

It would be difficult to overemphasize the importance of management's being realistic about the conversion period and conversion costs in appraising the economics of computer installations. For only after such a realistic analysis of these costs can management properly assess the risks of economic obsolescence. ♦



SURVEY OF BOOKS FOR EXECUTIVES

FINANCIAL ANALYSIS FOR MANAGEMENT. By Ronello B. Lewis. Prentice-Hall, Inc., Englewood Cliffs, N. J., 1959. 190 pages. \$25.00.

*Reviewed by R. J. Pere**

It has been said that the decision to base action on facts rather than feelings or intuition leads a man 80 per cent of the way to accurate decision-making. Self-evident though this principle may appear, in actual business practice it seems to be honored more in the breach than in the observance. Granted, many business firms base their decisions on what they regard as facts, but all too often the data are either incomplete or collected in a biased manner. (Indeed, it is not unknown for data to be prepared after the decision, to justify management's preconceived ideas.)

Mr. Lewis' new book, *Financial Analysis for Management*, not only shows that facts can be readily marshaled—it also spells out the data required for investment decisions. In thus emphasizing the factual ap-

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proach to better business practice, it is a useful contribution.

Essentially, the book consists of a comprehensive set of work sheets with detailed explanations covering a wide range of investment decisions. The specific areas covered are: (1) capital equipment decisions; (2) mergers; (3) acquisitions; (4) adding or dropping product lines; (5) lease vs. purchase and purchase-leaseback; (6) interdivisional pricing; and (7) cash planning.

These work sheets should be helpful to the accountant or analyst who is relatively inexperienced or who is occasionally called upon to evaluate such projects. In a sense, they provide a check list of the factors to be considered as well as a method of making the evaluation. The non-financial executive may also find the material helpful in familiarizing himself with some of the details behind the summary data presented to him as a basis for his decision.

As regards the evaluation of capital equipment, Mr. Lewis is in favor of computing the increment investment required over the present investment and dividing it into the increment profit that will result—in other

words, computing an increment rate of return. He limits this calculation to the changes in the first year only. He also devotes a chapter to the discounted cash-flow method; but possibly because he is opposed to this method, his explanation of it is not so clear as his account of the method he himself prefers. In Mr. Lewis' view, his method offers the following advantages:

1. Savings will remain constant each year.
2. Straight-line depreciation is more realistic than accelerated.
3. It is easier to compare actual results with forecasts.
4. Executives will understand the "accounting" presentation more readily than the cash-flow presentation.
5. The historical record of investment cost is a logical way to evaluate current methods cost.

In this reviewer's experience, however, not all these assumptions are necessarily valid for every evaluation. And many other writers would in fact disagree violently with Mr. Lewis' method. For example, John G. McLean, in an article in the *Harvard Business Review* for November-December, 1958, rather effectively demonstrated the inconsistent results obtained by using methods other than the discounted cash flow. Indeed, Mr. Lewis himself finds it necessary to resort to this method in order to provide a basis for demonstrating the disadvantages of leasing vs. purchasing. Here he abandons the concept that straight-line depreciation is more realistic than accelerated and makes his comparisons on the basis of cost before

taxes (rather than after taxes, as in his other examples) in order to justify his conclusion.

It is the opinion of this reviewer that a modification of the cash-flow approach will ordinarily give much better results. By computing cash inflows at the desired rate of return (or cut-off rate), the analyst avoids the unwarranted assumption that these cash inflows can be invested to yield the same rate of return as the project under consideration. This method would not only be more accurate, but also more easily understood by executives. Although additional work is required of the analyst, the amount of it is insignificant in comparison with the initial collection of basic data and the magnitude of the investments being evaluated.

Perhaps Mr. Lewis considers the specific value of rate of return produced by a financial analysis to be unimportant, since his method involves comparing alternative investments to determine which are the most desirable. In any case, he is not perceptibly disturbed in pointing out that his method results in rates considerably different (40 per cent to 245 per cent) from the more accurate discounted cash-flow method. His idea might have some merit for a firm interested only in a comparative advantage between alternatives. But the firm far enough advanced in its practices to establish a uniform investment policy applying to inventory, research and development projects, advertising programs, and other types of investment requires a more precise method to insure consistency in utilizing a cut-off rate of return.

It would have been helpful if the

author had covered some of the practical aspects of the application of investment theory to business operations (see, for example, *Managerial Economics*, by Joel Dean). If he had, the reader would be better prepared to utilize the data presented.

The chapter on planning the source of funds is most useful, since it covers both advantages and disadvantages of obtaining funds from various sources. The work sheets are set up so that the most desirable source of funds is tapped first and the least desirable last.

The chapter on interdivisional pricing is also quite helpful in providing a number of solutions to each problem posed and discussing their applicability in various circumstances.

The chapters on mergers and acquisitions outline the information required and the method of presenting it. Included is some discussion of pitfalls involved and the methods of reconciling differences in statements

presented by candidates for merger or acquisition. It is unfortunate that the examples given show projects with relatively low rates of return (5 to 9 per cent). The inexperienced reader might be misled into believing that such low rates are typical in business practice, when, in fact, many firms will not consider new investments unless the indicated return is from 20 to 40 per cent.

To summarize, this book might be a useful one to add to a business library, provided that some of the recommended procedures (particularly those concerning the simplified approach to capital expenditures) be compared with other sound approaches to the problem. For example, Terborgh, in *Dynamic Equipment Policy*, gives details on the more complicated MAPI Plan, and E. L. Grant, in *Principles of Engineering Economy*, presents a more complete explanation of the discounted cash-flow method.

Briefer Book Notes

(Please order books directly from publishers)

FINANCIAL

COMMON STOCKS AND BUSINESS CYCLES: A Practical Analysis of the Basic Causes and Patterns of Cyclical Behavior in Economic Series. By Edgar Lawrence Smith. The William-Frederick Press, 391 East 149 Street, New York 55, N.Y., 1959. 226 pages. \$10.00. Tracing the development of the cyclical probabilities concept, the author outlines procedures for its application to general business, banking, investment, and even government agencies. Numerous charts and tables are used to illustrate these procedures.

SECURITY ANALYSIS: Interpretation of Financial Statements. By Douglas H. Bellemore. Simmons-Boardman Publishing Corp., 30 Church Street, New York 7, N.Y., 1959. 196 pages. \$5.00. A guide to understanding financial statements, designed for the security analyst and investor. Emphasizing the

importance of adjusting reported earnings to determine true earnings, the author reviews and analyzes the balance sheet, using examples from actual corporate data of the 1950's.

THE MANAGEMENT OF CORPORATE CAPITAL. Edited by Ezra Solomon. The Free Press of Glencoe, Illinois, 119 West Lake Street, Chicago 1, Ill., 1959. 327 pages. \$7.50. Twenty-two essays reprinted from journal literature. The emphasis is not on how problems in capital management are resolved in practice, but on how they *should* be solved. Among the problems considered are measuring the productivity of capital, rationing capital, costs of debt and equity funds, cost of capital in an imperfect market, and applications of linear programming.

PROCEEDINGS OF THE TWENTY-FIRST ANNUAL INSTITUTE ON ACCOUNTING. College of Commerce, The Ohio State University, Columbus 10, Ohio, 1959. 144 pages. Gratis. Included in these conference proceedings are papers on controversial areas within generally accepted accounting principles, internal inspections for better tax administration; business conditions and monetary policy; and rulings and federal taxes.

WIDENING OUR HORIZONS: Addresses before the 18th Conference of The Institute of Internal Auditors. The Institute of Internal Auditors, 120 Wall Street, New York 5, N.Y., 1959. 87 pages. \$1.50. Among the topics covered in these proceedings are the acceptability of internal audits to independent accountants, preparation for broadening the internal audit function, the financial management improvement program in the U.S. government, and the operational audit as an extension of management controls.

ACCOUNTING SYSTEMS IN MODERN BUSINESS. By Eldred A. Johnson. McGraw-Hill Book Company, Inc., 330 West 42 Street, New York 36, N.Y., 1959. 453 pages. \$7.75. Emphasizing the increasing importance of automation in the accounting system, the author traces the development of accounting procedures from manual methods, through current principles and procedures in systems design and installation, to modern accounting equipment and its application. Exercises in accounting problems are provided to enable the reader to utilize the procedures covered.

CLASSIFICATION AND CODING TECHNIQUES TO FACILITATE ACCOUNTING OPERATIONS. (N.A.A. Research Report 34.) National Association of Accountants, 505 Park Avenue, New York 22, N.Y., 1959. 52 pages. \$2.00. A study of the practices of 40 companies with extensive experience in data processing, this report incorporates recent developments in coding the ever-increasing volume of data that management needs to operate effectively.

INVESTING FOR A SUCCESSFUL FUTURE. By Thomas E. Babson and David L. Babson. The Macmillan Company, 60 Fifth Avenue, New York 11, N.Y., 1959. 312 pages. \$4.95. A guide to family investment planning designed to cope with increasing inflation and mounting taxes. The authors discuss modern problems of investing, compare the results of various investment methods, and examine the behavior of common stocks in certain growth industries.

Publications Received

(Please order directly from publishers)

WORLD TRADE DATA YEARBOOK. International Trade Review, 253 Broadway, N.Y. 7, 1959. 64 pages. \$1.00.

THE ELIMINATION OF DOUBLE TAXATION. The Organisation for European Economic Co-operation, 2000 P St., N.W., Washington 6, D.C., 1959. 51 pages. \$1.00.

GUIDES FOR BUSINESS ANALYSIS AND PROFIT EVALUATION. Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., 1959. 76 pages. 30 cents.

STATISTICAL FORECASTING FOR INVENTORY CONTROL. By Robert G. Brown. McGraw-Hill Book Co., Inc., 330 West 42 Street, N.Y., 1959. 232 pages. \$7.75.

REGRESSION ANALYSIS. By E. J. Williams. John Wiley & Sons, Inc., 440 Fourth Ave., N.Y., 1959. 214 pages. \$7.50.

HANDBOOK OF BUSINESS MATHEMATICS. By William R. Minrath. D. Van Nostrand Company, Inc., 250 Fourth Ave., N.Y., 1959. 658 pages. \$9.85.

AMA CONFERENCE CALENDAR

MARCH - MAY, 1960

<u>DATE</u>	<u>CONFERENCE</u>	<u>LOCATION</u>
April 4-6	29TH NATIONAL PACKAGING CONFERENCE AND EXPOSITION	Convention Hall Atlantic City
April 4-7		
April 11-13	DISTRIBUTION MANAGEMENT CONFERENCE	Fairmont Hotel San Francisco
May 2-4	GENERAL INSURANCE CONFERENCE	Roosevelt Hotel New York

To register or to obtain additional information on any of the conferences listed above, please contact Department M3, American Management Association, 1515 Broadway, New York 36, N.Y.

Special AMA West Coast Conference on

DISTRIBUTION MANAGEMENT

April 11-13, 1960 • Fairmont Hotel • San Francisco

TOP MANAGEMENT now pinpoints physical distribution—*the job of moving your product from the end of the production line to your customer's plant or warehouse*—as industry's third largest cost of doing business. By 1955, the huge load increase which our distribution system will have to carry is forecast to go as high as 21 per cent above current levels.

At this **SPECIAL AMA WEST COAST DISTRIBUTION MANAGEMENT CONFERENCE**, leading business representatives will examine how top managements of the nation's forward-looking companies are acting to reduce distribution costs and increase profits. Experts will point out the effects which dynamic changes will have on distribution costs . . . outline cost-cutting approaches like "piggy-back," containerization, speed loading, and simplified packaging.

Key topics will include:

- **An Over-all View of Distribution Management**
- **The Role of the Federal Government**
- **Containerization**
- **The Total Cost of Your Physical Distribution System**
- **Operations Research Applied to Physical Distribution**
- **Private vs. Public Warehousing**
- **The Common Carrier's Part**
- **New Methods of Reducing Distribution Costs**
- **Distribution Predictions for the 1960's**

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QA on AMA



Q. *I have read the outline for one of AMA's forthcoming meetings. One particular part is of great interest to me. Is it possible to register and be charged for just a portion of the total meeting?*

A. For those meetings designated *General Conferences*, partial registration is possible. The program of such a meeting is usually prepared with specified periods of time devoted to particular phases of the over-all subject under consideration.

For all other types of AMA meetings, registration must be for the entire meeting. The coverage of subject matter is carefully coordinated, each part building on the ground that has previously been covered. Furthermore, the great importance of open discussion in all AMA sessions, except perhaps for conferences, makes it essential that the men stay together for the duration of the meeting, coming to know each other's background, experience, and problems.

★ If you have any questions about AMA's program or policies, please submit them to AMA's Member Service Section. All inquiries will be answered promptly. Those questions of most general interest will appear in this feature in subsequent issues of *The Management Review*.

